
MEETING NOTES

OCTOBER 8, 1997

COLUMBIA RIVER OFFSHORE DISPOSAL SITE WORKSHOP

Fisheries and Biological Resources Working-Group Meeting

Meeting Notes

Introduction

On October 8, 1997, a meeting was held at the U.S. Army Corps of Engineers (Corps), Portland District offices for Working Groups 1 and 2, subgroups of a larger group of public and private stakeholders who have convened to discuss offshore disposal options for the Mouth of the Columbia River (MCR) and the Columbia River Channel Deepening Projects. The purpose of this meeting was to discuss the development of overlay maps to in order to depict fishery and biological resources. Representatives from state, local, and federal agencies were in attendance, as were individuals from the crab and fishing industry and the offices of state and federal Representatives. A neutral facilitator, Valerie Lee of Environment International (EI), led the meeting. Margaret Merrens, also of EI, co-facilitated and recorded notes of the proceedings.

Opening Remarks - Review of Draft Agenda

Valerie Lee (EI), group facilitator, welcomed all participants to the third meeting of the fishery and biological resource working group. Valerie explained that her role is as a neutral party, to assist the group in identifying common ground. She will encourage participants to raise and discuss issues in an open manner. Valerie informed the group that she had met informally with a group of stakeholders from the Columbia River Crab Fisherman's Association (CRCFA) prior to the meeting. At this gathering, the CRCFA had presented a letter to Valerie, addressed to the Colonel, that they wished to have incorporated into the agenda for group consideration. In the interest in moving ahead, Valerie suggested that the group might opt to proceed with the agenda as proposed and leave time for review of the letter after lunch. The group accepted Valerie's suggestion.

Introduction - Overview of the Overlay and Site Designation Process

For the benefit of new and to update former participants, Laura Hicks (Corps) readdressed the process by which the group was engaged to assist the Corps with its identification of offshore disposal sites. Restating what had been summarized at a previous meeting, Laura indicated that the Corps' intent was to designate new offshore disposal sites for long-term use. To designate a site requires an EIS. The Corps has two opportunities to include site designation information in an EIS: in November in the DMMS/SEIS and next October in the Feasibility Report/DEIS for the Columbia River Channel Deepening Study. The overlay process is a component of the overall site designation process.

Laura explained how it was decided in 1994 in the scoping document for the feasibility study that a new offshore site was necessary for the MCR as well as potentially for deepening material. Last February, with the public notice for the expansion of sites B&E, the need for a new site for the MCR was brought to the forefront. It was decided that both processes would be folded together, since both the inner channel deepening and maintenance operations require offshore disposal sites. The Corps is looking for a site to cover both projects.

Laura explained that it was the Corps' intent to use the overlay process to bring together information from all individuals and user groups. This information will then be used to assist the Corps with the process of site selection. The Corps has the responsibility to balance the concerns and considerations of all user groups.

Laura presented an overhead chart depicting the timeline associated with the site designation process. She explained how this timeline was consistent with information presented at the first meeting. Procedurally, the site designation process requires that information regarding the selection of sites be disclosed in an Environmental Impact Statement. To reiterate what was said at the first meeting, two windows of opportunity exist for the gathering of public input and comment for site designation, October 1997 and

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October 1998. These two dates correspond with pre-designated EIS comment and review periods established for the DMMS and the Channel Deepening Projects respectively. Laura informed the group that the Supplemental EIS slated for October 1997 has been delayed by one month and will actually be released in November. Referring to the EIS timeline, Laura stated that there were two opportunities to consider the designation of new sites in the context of ongoing EIS's (as reiterated from the first meeting, such a selection would be conducted consistently with the process as set out under Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA)). Laura also indicated that there may be an opportunity to designate a site under Section 103 of MPRSA. Such a process, however, would only result in interim designation and would still require final designation under a formal EIS process.

Laura explained that if all goes well over the next month, then the Corps may be able to present a site or sites for review in the November Supplemental EIS for the Dredged Material Management Study. If not the Corps will seek to include proposed sites in the October 1998 Draft EIS for the Channel Deepening Feasibility Study. Laura expressed her belief that the likelihood of designation in the next year is slim but still possible. If designation does not occur with the next two months, then it will be delayed until the following year and will need to occur within the 2001 time frame for the Channel Deepening Project.

John Malek (USEPA): When asked what the time frame would be for a MPRSA Section 103 site designation, John stated that a 30-day public notice and comment period is first required. Then, as soon as the Corps makes a final decision on a 103 site and obtains an EPA letter of concurrence, the new sites would become effective.

Laura Hicks (Corps) went on to review the agenda for the day's meeting and the upcoming schedule for the overlay process. Today's meeting is designed to enable this particular working group to discuss data and issues associated with its own overlays. Completed overlays would be presented at a future meeting to be held on the 22nd and 23rd of October in Astoria, OR.

Edie Beasley (CRCFA) asked Laura to clarify the difference between the 40-foot channel and the Feasibility Study. She asked if both (EIS's?) were part of the Channel Deepening Project.

Laura Hicks (Corps) responded that no, both EIS's are not related to the channel deepening project. Only the DEIS (feasibility study) is related to the channel deepening project. The SEIS is for the dredge material management study which addresses the existing 40-foot authorized channel.

Overview of Objectives for the Meeting

Kim Larson (Corps) outlined the goal of the meeting to decide as a group which biological overlays the group will bring to the meeting in Astoria. Kim explained that an informal process would evolve during the day whereby the group would gather around maps and discuss which data to include in the overlay maps. The information selected will then be passed on to GIS specialists at the Corps for the purpose of producing several overlay maps.

Review of the Minutes from the Last Working Group Meeting

Valerie Lee (EI-facilitator) suggested that the group look over the minutes from the last Group 1&2 meeting to provide comments regarding any necessary revisions prior to adoption. Three changes/clarifications were requested

1. Kathi Larson (USFWS), referring to the attendance list on the last page, indicated that the e-mailed version of the notes had incorrectly shifted the organizations down 2 lines, such that the names and organizations no longer matched up correctly. Those attendees with non e-mailed (original) versions of the notes had no errors.

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2. The group agreed to strike "30-40 cu. yds per day" from the last sentence on page 8 to read "30,000 - 40,000 cu. yds per day." For those with an e-mailed version, this change was made to a response of Eric Braun/Corps to a comment by Edie Beasley/CRCFA.
3. Laura Hicks (Corps) asked Edie Beasley to clarify what she meant by the comment on page 6 whereby "[s]he suggested that Laura Hicks' letter may have raised a similar concern." Laura asked Edie to what letter she referred. Edie Beasley (CRCFA) clarified that she had been referring to a presentation, and not a letter, that Laura had made at an earlier meeting. It was agreed that the minutes should reflect such change. The last sentence of the second indented paragraph on page 6 was struck and should now read: "She suggested that a previous presentation of Laura Hicks may have raised a similar concern."

No other changes were made. It was agreed that the group would delay adoption until after lunch to allow some participants sufficient time for review.

Presentation of Benthic Invertebrate Information

Danil Hancock (Oceanographic Institute of Oregon - OIO) reported that he had completed his review of benthic invertebrate information and provided the group with an oral and written summary of his results. He reported that he had completed a review of biological studies off of the MCR to determine which areas/locations might be of greatest biological significance. He indicated he had also devoted time to respond to specific requests made by the group during its last two meetings regarding which studies would be most helpful to review. Danil reviewed studies conducted between the years of 1973 and those ongoing today. He indicated that his review was on a grand scale, not a minute one dealing with the intricacies of the data. He utilized GIS to map the coordinates of all the samples taken off of the MCR and to display the coverage of the sampling.

Summarizing his work Danil remarked that he had presented several maps to the group at the first meeting in order to determine if sufficient data was available. Each workshop generated more questions for him to answer, such as whether the data was valid, what sampling methods were used, were these methods consistent and comparable, etc. Danil stated that he considered these questions when designing his report. He has summarized several studies and data obtained from such studies in his report to assist this group with its overlay process.

Danil reported that a tremendous amount of benthic sampling has taken place off the MCR. Danil indicated he could think of no other place where more sampling had occurred and that any further sampling would be duplicative of years of sampling effort.

Kim Larson (Corps) requested the group to review the maps in the back of Danil's report. He asked Valerie to assist the group in determining whether consensus could be reached regarding which maps to select for the final overlay process.

Dick Sheldon (CRCFA) asked if there was a correlation between the number of crabs per pot caught off the MCR and the number of worms found in a benthic sample.

Danil Hancock (OIO) responded that there was no direct correlation, but that an implied one existed.

Dick Sheldon (CRCFA) commented that he was aware of the existence of female crabs on existing disposal sites. He added that he felt that there is still much not understood with respect to crabs off of the MCR. He would like to know how much damage might occur to crabs as a result of dumping dredged material off of the MCR. He indicated that if benthic studies will guide this answer, he would accept them, but he has not seen such proof yet.

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Danil Hancock (OIO) explained that the data he dealt with did not directly address the issue of soft-shell crabs, but that this is an area of expertise of others, including Kim Larson. Danil indicated that Kim may be addressing this issue later.

Kim Larson (Corps) remarked that the Corps would like to see an overlay with crab information as well as an overlay with the benthic data that Danil has collected.

Dick Sheldon (CRCFA) added that he was simply stating that he did not see a direct correlation between the benthic data and crabs from the information provided at this meeting.

Edie Beasley (CRCFA) pointed out that Danil had indicated that densities of benthic invertebrates were higher off of Tillamook then they were off the MCR. Yet, she stated, crab output is higher off the MCR.

Danil Hancock (OIO) stated that more greater output does not necessarily indicate greater density. He stated that more "takes" may not translate to actual numbers of crabs in an area.

Steve Barry (WDFW) added that his organization had conducted taggings and had found that catches correlated to estuaries, whether Tillamook or the MCR.

Edie Beasley (CRCFA) asked why there are more crabs caught off of the MCR, and why would this be the case if benthic populations are higher off of Willapa Bay and Tillamook.

Danil Hancock (OIO) said that landed crabs tend to be indicative of several factors, including fishing effort and travel time to home port.

Edie Beasley (CRCFA) agreed, but added that if crabs were there then people would find them.

Danil Hancock (OIO) concluded that he did not know exactly why the crab output appeared to be higher off of the MCR. He stated that high densities of benthic invertebrates are known to exist at the MCR, and that these densities are known to correlate to other fisheries. He said he was also aware of the occurrence of cyclings of crab landing which vary over 10 or so year periods, and the possibility of impacts as a result of the El Nino phenomenon. He states that he could not say with 90% confidence, however, that crabs and benthic invertebrates go together.

Group Discussion Regarding Specific Overlay Maps

Kim Larson asked if the participants could provide comments on the maps that Danil had produced.

Discussion of General Benthic Invertebrate Densities

Dale Beasley (CRCFA) asked Danil if it was possible to compare densities of invertebrates between sites.

Danil Hancock (OIO) responded that this was possible on the original GIS versions of the maps. The GIS version uses different colors to depict different density categories, thereby allowing for identification of areas of highest density. The photocopied versions in the report, however, do not depict color.

Dick Sheldon (CRCFA) asked Danil to clarify if this map depicted just invertebrate density or if it was specific to species diversity or richness.

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Danil Hancock (OIO) responded no, that he does not feel that species diversity or richness are appropriate measures of relative productivity, and this is why he selected density as a means of depicting productivity.

Kim Larson (Corps) asked the group if they would like an overlay map produced to depict differences in benthic invertebrate density.

Steve Barry (WDFW) remarked that he would like to have an indication as to when disposal occurred in an area and when a particular sample was taken if it is in a disturbed area. Steve suggested that some type of shading might be helpful to determine if sampling occurred in a year of dumping or not.

Kathi Larson (USFWS) asked if the Corps had collected information from crabbers or fishermen regarding distributions during the October 1 and 2 survey period.

Kim Larson (Corps) responded yes, and that this information would be presented later.

Danil Hancock (OIO) stated that from his overview of the studies, certain areas may be identified as area of biological uniqueness. This information may provide an idea as to where dumping should not occur, but not necessarily where a site should be placed.

Kathi Larson (USFWS) asked Danil if he could go back to put disposal shading on the maps.

Danil Hancock (OIO) said yes. He then added that most of the sampling occurred at disturbed sites in connection with current dredging studies. He also cautioned that spikes in density are possible, and higher densities on these charts may not always be truly indicative of higher densities in an area.

Kim Larson (Corps) asked again if it would be helpful for Danil to put this information onto a composite map - comprising all sampling stations - to develop a map representative of densities.

Steve Barry (WDFW) asked if it was possible to eliminate spikes.

Danil Hancock (OIO) stated that in addition to spikes there are also cyclical shifts and depressions since this is a very dynamic system. Danil indicated that his studies have told him that densities are generally uniform out there except in one area, and densities tend to be higher north rather than south of the jetties.

Edie Beasley (CRCFA) would agree that crab densities correspond generally to Danil's observations. Pointing to the map she indicated that crabbing is more productive north of the MCR channel than south of the channel.

Dale Beasley (CRCFA) asked if they might be able see the relationship between pre-dispose and post-disposal densities.

Kim Larson (Corps) indicated that this issue had been addressed in Danil's report.

Diane (CRCC) stated that she was under the impression that if sampling had occurred at a specific site, then disposal was also taking place at that site.

Kim Larson (Corps) asked for input on the maps again.

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Rick Vining (WDOE) indicated that he could not identify one map for the purposes of the overlay process, but would prefer to see the information integrated, including sampling location and density of benthic invertebrates.

Steve Barry (WDFW) would like to see the same and how it relates to depth.

Kathi Larson (USFWS) agreed with Steve and Rick.

Kim Larson (Corps) indicated that this could be done. He then asked if other participants would like to have the Corps compile a composite map to incorporate densities of benthic invertebrates from all studies (sampling locations) in one overlay.

Consensus Point: All participants agreed to have the Corps compile a composite overlay incorporating the densities of all benthic invertebrates from all studies in one map.

Discussion of General Crab Information

Rick Vining (WDOE) stated that due to the sparseness of crab data he would like to see crabs addressed as a separate overlay.

Danil Hancock (OIO) remarked that the data was not sparse, and would likely be supplemented by additional data collected from the crabbing community.

Kim Larson (Corps) asked if any other participants would be interested in compiling crab information on a separate overlay map.

Consensus Point: All participants agreed to have the Corps compile a separate overlay map to depict crab information.

Discussion of Seabirds

Kathi Larson (USFWS) brought the group up to date on her efforts to investigate seabird information available for the MCR. Reiterating what she had summarized in the last meeting she indicated that she had contacted two different state biologists to determine seabird use off of the MCR. They provided information to indicate that terns feed to the south of the south jetty in the Clatsop Spit area. Cormorants feed north of the north jetty near Peacock Spit, and the surf zone and wave action does not seem to bother them. Oregon coast data indicates that brown pelican populations have been increasing and are well established on East Sand Island. They are present as far as the Columbia River plume extends, as far as 15 miles offshore, as are plovers and sooty shearwaters. The pelican range corresponds to anchovy migrations north and south off of the MCR. Murrelet surveys have been conducted, but their concentrations are greatest further north along the coast. Summarizing Kathi stated that seabirds have no specific range or area where they congregate, as they are found both north and south of the MCR and as far offshore as 15 miles.

Rick Vining (WDOE) stated that he thought it would be difficult to create an overlay based on such information.

Arlene Merems (ODFW) said she was still curious as to the existence of seabird surveys that might identify specific feeding areas or temperature gradients. She thought some information might be available from fishermen.

William Rhodes (CRCFA), who has fished the area extensively, indicated that the first time he saw brown pelicans in the area was in 1983-84. He has seen several pelicans at 400 fathoms and can confirm all that Kathi has said.

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Valerie Lee (EI) asked the group for further input regarding seabirds.

Consensus Point: All participants agreed that an overlay depicting seabird feeding areas was not necessary, since they feed extensively throughout the region.

A Question about Scheduling

As an aside, Edie Beasley (CRCFA) stated that she had a question regarding the minutes from the last meeting. She said she was of the impression that the overlay maps were going to be presented at this meeting. She said she had invited the representatives here for this reason. Edie drew attention to the comment in the middle of page 9 of the August 20 minutes where Kim Larson had reminded the participants that they had committed to getting their information for preparation of the overlay maps to the Corps by September 24.

Kim Larson (Corps) responded and stated that the September 24th date was set with the hope of receiving early information from the participants. He was hoping to avoid difficulties which might arise from the preparation of several GIS overlays in the final two weeks before the late October meeting.

Discussion of Shrimp

Arlene Merems (ODFW) reported that she and Dave Fox had investigated existence of shrimp information. She reported that shrimp are harvested offshore beyond 300 feet which is mostly outside of the 13 mile Zone of Siting Feasibility (ZSF).

Kim Larson (Corps) asked if the group was interested in having a shrimp overlay map produced.

Consensus Point: All participants agreed that an overlay depicting shrimp information was not necessary.

Discussion of Razor Clams

Steve Barry (WDFW) reported that he had consulted with Doug Simons who had 20 years of experience in the area of the clamming fishery. Doug was not concerned with any impacts in connection with the disposal of sand, since clams do well in sand, easily digging in or out.

Valerie Lee (EI) asked if the participants were satisfied with Steve's information and if they wished to make a decision regarding the need for an overlay for razor clams.

Steve Barry (WDFW) remarked that the information with which WDFW is most concerned will be addressed by Danil's benthic invertebrate overlay and a razor clam overlay is not necessary.

Danil Hancock (OIO) commented that the benthic data is not necessarily representative of razor clams. Razor clams were not necessarily sampled.

Steve Barry (WDFW) stated that he still was of the opinion that razor clams would do well in any area of disposed sand.

Rick Vining (WDOE) expressed an interest in obtaining further information regarding razor clams that Dave Fox (ODFW) had mentioned in a prior meeting.

Arlene Merems (ODFW) speaking on behalf of Dave Fox said that she had data indicating greater densities of razor clams inshore than out. Oregon data indicated highest densities up to 8 fathoms and lower densities beyond 8 fathoms. Oregon also has some catch data available.

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Steve Barry (WDFW) indicated that Washington State data indicated relatively low densities of clams in this area of Washington.

Kathi Larson (USFWS) asked if disposal might actually create clam habitat, and if it was worthwhile to create an overlay map depicting areas where potential habitat could be created.

Rick Vining (WDOE) responded that he would like to see an overlay for razor clams.

Laura Hicks (Corps) asked if the participants might agree to produce an overlay that the Corps could then weight in a manner to reflect potential for beneficial use.

Steve Barry (WDFW) stated that his agency put great value in the beneficial use of dredged material. He also re-emphasized his sense that the potential for impacts as a result of dumping sand were low for clams, and he would support the use of an overlay for the purpose of indicating beneficial uses.

Dick Sheldon (CRCFA) stated that he had a different sense about the prevalence of clams outside of 8 fathoms. He indicated that he has been fishing for over 30 years and his highest takes of razor clams taken in crab pots were taken in 1972-73 at 14-16 fathoms right on top of what is now the small Site B. Dick indicated that concentrations of razor clams were somewhere in the range of 14-20 clams per pot in that spot. Dick stated that Dale Beasley's catches in that same area would indicate a clam population there as well.

Consensus Point: All participants agreed that an overlay depicting razor clam information obtained from Arlene, Steve, and Dick should be created. The nearshore zone would be treated as one area and then Arlene's and Dick's information would be added in separate zones.

Discussion of Marine Mammals

Kim Larson (Corps) reported on behalf of Ben Meyer (NMFS) regarding the availability of information on marine mammals. Marine mammals utilize the whole area beyond the MCR and it would be difficult to specify an area of greatest significance where they might congregate. It was Ben's impression that no overlay was necessary.

Consensus Point: All participants agreed that an overlay depicting marine mammal information would not be necessary.

Presentation of Crabber and Fisher Survey Results

Kim Larson (Corps) reported on the results of the in-person crab and fish surveys the Corps conducted in Astoria on October 1 and 2. Kim stated that he and Laura Hicks, and Heidi had met with several crabbers and fishers over a two day period. They were available for in-person meetings during day and evening hours over the two days. Dale and Edie Beasley assisted the Corps with notification and encouragement for participation. The Corps had also provided notice in the local newspapers regarding the survey and provided a toll-free number for those who might not be able to attend a meeting.

Kim presented a series of overhead charts to summarize the results of the surveys. Key points were as follows:

Background Information

- 15 crab fishermen came by to talk and fill out surveys; thirteen were from Washington and two from Oregon;

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- their experience ranged from 8-44 years, with an average of 25 years; they had 386 years of experience collectively;
- each fisherman had between 300-900 crab pots, with an average of 636 pots per fisherman; they had 8050 pots collectively.

General Observations

- almost all of those attending expressed a concern for mounding which might create a navigational or safety hazard;
- there was concern that Site B would continue to mound and Site E would start to mound blocking transit routes.

General Observations

- fishermen thought the waters to the north were more productive than those to the south; fishermen from Washington State stated that the waters were most productive north of the outflow channel; however, fishermen from Oregon disagreed and felt the waters south of the channel were most productive; there were no individuals who carried fishing licenses in both states;
- for the most part, crabbing occurs from December to June; some individuals fish for black cod and red rock fish at the head of Astoria Canyon in the off-season;
- the crabbers might be grouped into two main categories, either high-risk or low-risk, based on how they choose to set their pots; those who fish hard bottom have less loss of pots; those who fish soft bottom have higher productivity but a higher risk of gear loss.

General Observations

Kim stated that based on the information he obtained he had created a summary chart to depict percentages of fishing done in each of 12 different areas off the MCR. Crabber estimates as to where they fished were averaged to show percentages who fish in each area. The Washington sites were labeled Areas A through F and the Oregon sites were labeled G through L. In Washington, crabbers fish predominantly in Area D, and in Oregon in area H. Percentages were presented as follows:

• Area A	9.3	• Area G	0.0
• Area B	18.3	• Area H	5.0
• Area C	10.7	• Area I	2.7
• Area D	29.3	• Area J	0.3
• Area E	15.7	• Area K	3.7
• Area F	3.0	• Area L	2.0

General Observations

- a majority of those surveyed and interviewed favored thin-layer disposal, based on the sense that pin-point disposal creates mounds and the potential for navigational hazards;
- a majority of those surveyed and interviewed felt that disposal in Site E was not a good idea, due to a sense that sediments have a propensity to disperse and end up on Peacock Spit
- there was a general sense that sediment movement along the Washington coast was creating soft bottom and increased loss of pots;
- there was a sense that material disposed at Site E does not end up on Benson Beach.

General Observations on Trawl Fishing

Kim stated that he had also obtained some information from trawl fishers.

- trawl fishers indicated that they prefer to fish off-shore because of the large number of juveniles in-shore;
- they fish in-shore after crab fishing is over; they don't fish in-shore at all during crabbing season due to all the pots, and may enter the area in the off-season for crabbing.

General Observations on Bar-Pilot Navigation

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Kim stated that he had the opportunity to speak to some of the bar-pilots in Astoria.

- the bar-pilots identified the expanded Site F as a location which is crucial to their capacity to navigate off the MCR.

Questions and Reactions

Arlene Merems (ODFW) asked if Kim had compiled a detailed report of the survey information.

Kim Larson (Corps) responded that the information he presented comprised a substantial portion of the information they had collected.

Dick Sheldon (CRCFA) cautioned that the information that Kim presented does not indicate where people crabbed historically. Current fishing areas are different than they were ten years ago. Due to the mounding problems at Site B, there is much less fishing there now. And Kim's information is not necessarily indicative of locations of soft-shell or juvenile crabs, only adult male crabs.

Kathi Larson (USFWS) asked Dick if they happened to get incidental soft-shell and juvenile crabs in their pots.

Dick Sheldon (CRCFA) answered yes, but indicated that escape rings let most of them out of the pots.

Kim Larson (Corps) stated that any information as to where crabs are located as well as where their numbers are limited is important. The Corps is relying on the crabbing community to assist them with the collection of such information.

Discussion of Soft-shell Crab Distributions

Participants from the crab fishing industry gathered around a large map of the MCR and ensued in a discussion regarding locations of soft-shell crabs.

Bill Rhodes (CRCFA) mentioned that soft-shells are in what is referred to as the off-shore zone on the map in mid-June. Then throughout the rest of the summer they migrate in-shore following food sources as they harden-up.

Dick Sheldon (CRCFA) added that in addition to this trend, when the stronger crabs are in toward the beach the weaker ones may be further out, such that they are literally everywhere out there.

Kathi Larson (USFWS) asked Dick if he was indicating that the entire area is used by soft-shell crabs.

Dick Sheldon (CRCFA) answered yes, seasonally.

Dale Beasley (CRFCA) clarified that this is true for legal and sub-legal adult soft-shell crabs. The exact locations of soft-shell juvenile crabs is still an unknown.

Kathi Larson (USFWS) said that she would like to have more information regarding juvenile, i.e. 2 inch, crabs.

Dale Beasley (CRFCA) mentioned that on occasion his pots have been filled with juvenile crabs, but for the most part it is difficult to trap juvenile crabs in pots.

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Arlene Merems (ODFW) added that juvenile and soft-shell crabs tend to aggregate in clumps, making sampling difficult.

Steve Barry (WDFW), reconfirming what Arlene had stated, indicated that juvenile crabs have contagious (clumped) distributions and thus require extensive sampling effort.

Dale Beasley (CRFCA) stated that this phenomenon leads him to suggest that more than one disposal site be designated and that the sites be carefully monitored.

Kim Larson (Corps) assured Dale that they will likely address this issue in the next meeting.

Steve Barry (WDFW) stated that the overlays need to address age structure and size of crab, i.e. ages 0-3 and 3 plus (the 3 year old crabs are typically the 5 inch and above crabs).

Dale Beasley (CRFCA) stated that the male crabs are mean and aggressive and tend to keep all other crabs out of the pot. Thus, the distribution of non-male adult crabs may look different.

Chris Doumit (CRCFA) stated that he would like to see the whole area designated as a soft-shell crab area and disposal moved off-shore. He stated that he was not prepared to designate one small area as indicative of soft-shell distributions.

Kim Larson (Corps) asked if it the participants would prefer to designate different areas to soft-shell crabs based on the time of the season.

It was agreed that Kim's suggestion was a good one and participants representing the crabbing industry gathered around the map to mark out three distinct areas where soft-shell crabs congregate at different times of the crabbing season. Three time periods with corresponding locations were assigned as follows: June through July, July 15 through August 15, and August 15 through September.

Consensus Point: All participants agreed to create an overlay depicting three-different locations where soft-shell crabs congregate at different times in the crabbing season.

Discussion of Commercial Crab Distributions

A discussion ensued among all participants regarding the commercial crab fishery and the creation of an overlay to depict general distributions of male adult crabs.

Dale Beasley (CRCFA) started out by stating that the data that the Corps obtained from Washington crabbers does not surprise him, but he stated that he felt the numbers pertaining to where people fish in Oregon might change a bit if more information were obtained. He added, however, that the numbers do indicate in a general manner where people tend to fish in both Washington and Oregon.

Dale went on to say that between December and February high rates of gear loss limits the location and number of pots. He remarked that the highest concentration of Washington pots would likely be North of Site B during this time, then in February the gear is moved. Dale indicated that most crab fishing is done inside of 40 fathoms, particularly in the early part of the season as a result of weather.

A map was jointly prepared by members of the crab industry to indicate a region of highest concentrations of commercial crabs. This region roughly encompassed . . . crabbing areas along the 124 parallel from just west of Area/Site F, along the south side of Area/Site B? (to be indicated in a gray), and to the North of Disposal Site B (highest concentrations - to be identified in black) Is this right - talk to Kim.

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Steve Barry (WDFW) gave support to the overlay as outlined by the crabbers. He further indicated that his agency would likely be assessing crabbing areas by plane during this coming season. He agreed that the highest concentrations of crabbing are found around Buoy 1.

Consensus Point: Deferring to the judgment and expertise of the crabbers, all participants agreed to create an overlay depicting three-different locations where soft-shell crabs congregate at different times in the crabbing season.

Commercial Trawl Fishery

Arlene Merems (ODFW) reviewed and summarized trawl fishing data collected by the State of Oregon. She handed out several overheads containing confidential information to be used solely for the purposes of identifying prime fishing areas and for the creation of an overlay map for the Corps. Arlene stated that each circle/dot on the map indicates the start of a trawl which resulted in a catch greater than 200 pounds.

Arlene explained that the first two in the set of maps encompass all groundfish species between June and August, and September to November in the years of 1994-96. The information was obtained from Oregon trawlfish logbooks. The remaining maps provide information on selected species of fish. Black dots indicate a higher catch per unit of effort. Arlene cautioned that these maps show where fish were caught, but not necessarily where fish are concentrated. Furthermore, she stated, the circles indicate starting locations of trawls, not necessarily where the fish were caught. The fish could have been caught in any direction out from a circle up to a length of an individual tow.

Steve Barry (WDFW) asked if Washington logbook data had been incorporated into these maps. It was his impression that the PacFin database combines all Oregon and Washington data into 1 database.

Arlene Merems (ODFW) responded that the data she presented was not from the PacFin database, did not include WA logbook data, and only reflected marketable species.

Dale Beasley (CRCFA) commented that he had 12 years and several tows worth of trawling experience off of the MCR. He stated that he felt the Oregon data was excellent data and would make very little adjustment to the circles in Washington waters.

Bill Rhodes (CRCFA) and Steve Barry (WDFW) each expressed agreement with Dale's statement that the Oregon data was a good indication of where trawling occurs in both Washington and Oregon.

Kim Larson (Corps) asked whether the group would like to use some or all of the data presented by Arlene for an overlay depicting trawl fish concentrations.

Arlene Merems (ODFW) said that she would certainly include the data from the "all-species" map. She stated that this map is a better indicator of where tows are not occurring and this might be helpful when identifying a disposal site. She suggested that areas of highest density could be identified with polygons.

Kim Larson (Corps) suggested that shading would be a better method for identifying areas of differing density. He suggested that an overlay encompass both "all-species" maps, this would combine the summer catch and the fall catch.

Steve Barry (WDFW) asked if the two different maps depicting two different all-species catches (two different seasons) were indicative of biology or other fishing-related factors.

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A rather lengthy discussion ensued regarding whether or not to incorporate additional data for specific species of fish (the remaining information in Arlene's packet) in the same overlay as the "all-species" map. As was explained by Arlene, data on all of the maps is reflective of ponds of fish caught over a unit of effort. Level of effort was then divided into categories to reflect areas of greatest density. It was determined, however, that a 75% level of effort for English sole might reflect a 5000 pound per hour catch, whereas it might only be 200 pounds per hour for starry flounder. Arlene indicated that the maps for individual species were indicative of these differing levels of catch. Several individuals, thought it would be inappropriate to incorporate different catch rates on the same map without reflecting equal poundage levels in the ranking system. As a result it was decided that the first two maps, reflective of "all-species," would be used to represent commercial trawlfish densities.

Consensus Point: All participants proposed that a commercial trawl fishing overlay should incorporate data from all ground fish species caught between June-August and Sept-November in the years 1994-96.

Discussion of Juvenile Flat Fish Distributions

Kim Larson (Corps) stated that he has obtained information that the whole region is used by juvenile fish, and suggested that the area within the complete 13 mile zone be delineated as rearing area.

Dale Beasley (CRCFA) drew attention to the English Sole data. He stated that the region of dark circles in the center of the map are indicative of what he would outline as a juvenile flatfish rearing area.

Valerie Lee (EI facilitator) asked for input regarding Dale's outline of juvenile flatfish concentrations.

Steve Barry (WDFW) stated that Dale's opinion matches exactly what he has heard anecdotally from other fishers and he would defer to such information.

Rick Vining (WDOE) stated that he would be more inclined to support Kim's recommendation to designate the whole inner area as an area of high juvenile abundances.

Dale Beasley (CRCFA) clarifying what he had outlined regarding the juvenile zone, Dale stated that juveniles may be found in the whole area outlined by Kim, but may range anywhere from 3000-4000 pounds per catch in areas of highest concentrations out to almost none. He stated that he would suggest that the smaller of the two circular zones (4.5 miles) be slated as a juvenile flat fish area.

Kim Larson (Corps) stated that he obtained Newport data to suggest that the smaller fish are in-shore and gradually move out as they become larger. Kim stated that he would defer to Dale's knowledge and data which comes from specific trawls, and this is more persuasive.

Arlene Merems (ODFW) stated that she thought there might be additional juvenile data available from NMFS. She thought NMFS might have data from two studies to indicate juvenile densities.

Kim Larson (Corps) asked if the participants would be interested in depicting juvenile densities using gray and black regions to denote different concentrations.

Consensus Point: All participants agreed to create an overlay depicting three-different zones of concentration for juvenile flatfish; a light gray zone between the 4.5 and 13 mile ZSFs, a darker gray zone between 0 and 4.5 miles, and a black zone around Disposal Site B.

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Discussion Regarding Navigation for Commercial Fishery

Participants representing the crab and fishing industry gathered around a map and discussed the creation of an overlay map that would depict areas most critical to their capacity to navigate. They marked several primary routes on the map inside of Buoy 1. It was decided that an overlay would reflect that 75% of the time fishers and crabbers cut inside of Peacock Spit, as indicated with 3 separate arrows (3 routes) and the other 25% of the time, when driven by swells, weight, or inconvenience they would use a fourth route outside of Peacock Spit.

Consensus Point: Deferring to the judgment and expertise of crabbers and fishermen, all participants agreed to create an overlay depicting four separate routes as areas crucial to commercial fishery navigation.

Discussion Regarding a Salmon Closure Area

Dale Beasley (CRCFA) offered a suggestion that an overlay be created to depict an area closed to fishing for the past ten years by both the States of Oregon and Washington. Dale referred to this area as a juvenile salmon rearing area.

Steve Barry (WDFW) and Rick Vining (WDOE) both indicated that they were not familiar with the term "salmon rearing area." It was Steve's sense that this area was classified as a conservation zone and he suggested a call be made to Larry Sicks within WDFW to inquire as to the boundaries.

Kim Larson (Corps) stated that NMFS has not designated this area as critical salmon habitat under the ESA. He also stated that a regular closure area may have not have anything to do with biological significance.

Valerie Lee (EI-facilitator) asked if it might be worthwhile asking Ben Meyer (NMFS) and Larry Sicks (WDFW) about this area and tentatively including it as an overlay.

Consensus Point: It was agreed by all participants to tentatively include an overlay depicting a conservation/salmon rearing zone, and to consult with resource experts as to the purpose for designating such a zone.

Discussion Regarding Juvenile Crabs

Kim Larson (Corps) indicated that the data for the creation of an overlay depicting juvenile crabs was yet to be determined, and that he would rely on the expertise of Dave Fox and Arlene Merems (ODFW) for assistance.

Discussion Surrounding a Letter from the CRCFA to Colonel Slusar

The meeting participants agreed to review and discuss a letter written and signed by the CRCFA and addressed to Colonel Slusar at the Corps. The letter raised several concerns and interests of the CRCFA. The following discussion ensued.

Valerie Lee (EI-facilitator) asked for a representative from the CRCFA to outline issues raised in the letter.

Dale Beasley (CRCFA) began by stating that he had wished to address the letter to the group since he feels the group is best suited to respond to the issues it raises. However, the letter has been addressed to the Colonel since this was the protocol laid by the Corps at the July 23rd meeting. He stated that he had re-addressed his July 23rd letter to the Colonel (it was originally

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addressed to Kim Larson); yet, he felt the issues had never been fully resolved and thus several issues are raised again in this letter and the July 23rd letter was attached to today's letter.

Laura Hicks (Corps) stated that an official Corps response will be prepared to respond to today's letter since it has properly been addressed to the Colonel.

Kim Larson (Corps) asked Dale what he wished the group to do with the letter.

Dale Beasley (CRFCA) responded that he felt the group could address the issues, since they are more pertinent to the group. As an example, he stated that juvenile crab information is still lacking.

Valerie Lee (EI-facilitator) asked the crabbers if they had an initial thought regarding the time frame by which they would like a response to their letter.

Dale Beasley (CRFCA) stated that if a site could be found that benefits the people he represents then "he would have no issues to deal with in this letter." He added that if a suitable site cannot be found, and if the Corps cannot accomplish what is laid out in the second paragraph of the letter, then he will be more demanding of a response.

Laura Hicks (Corps) stated that she was having difficulty understanding two opposing points raised by the letter. She pointed out how the letter explicitly raises fault with the current disposal sites in paragraph 1. Yet, later the letter states that the Corps is proceeding along too quickly with new site selection. She stated that the Corps has no option but to maintain the channel opening at the MCR and to use the sites available to them. An opportunity exists to select new sites to replace the current sites. This group made the decision in the first meeting to support the Corps in a process to select new sites and to expedite the process. Laura asked the crabbers how the Corps should proceed. She added that it would take 3-4 years to collect new data.

Dale Beasley (CRFCA) stated that the letter acknowledges that the Corps has limited capacity in the current sites. He stated that Disposal Sites E and F have at most three dredging seasons available, the use of Site A is illegal, and Site B cannot be dredged anymore. He stated that the Corps has no choice but to expand the current ZSF to accommodate all the dredged material.

Laura Hicks (Corps) asked the crabbers to clarify why the CRCFA had recently taken the position that they don't wish to have further dumping at Site E; yet at other times during public comment no opposition had been voiced.

Dale Beasley (CRFCA) responded that he was in a position of compromise. He stated that he understands that the Corps must dispose of its sand. He stated that while he might encourage the use of Site E, since he is more willing to accept information obtained from the Corps that substances at Site E are not accumulating, other fishermen don't wish to see Site E used since they are less willing to "stick their necks out" to accept what the Corps has said.

Bill Rhodes (CRCFA) stated that he does not like to see Site E used, since he has to travel across Site E to get to his pots. Yet, he added, he is not trying to stop the Corps from having all use of the site. He stated that he personally does not like the site, but he is willing to compromise as well.

Valerie Lee (EI-facilitator) noted that Dale had been attending meetings as representing the CRCFA, and given that Dale might have a different view than his membership, she asked Dale if he was able to carry his membership on this issue.

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Dale Beasley (CRFCA) responded yes.

Kim Larson (Corps) stated that it was his impression that this is what the whole process was all about, collecting information, talking openly, and having involvement of several individuals. Yet, he added, when a 4-page letter is distributed indicating that the Corps has not accomplished anything and asserts "numerous violations," this is not indicative of a party that is willing to come to the table in an assisting manner. He said that as a federal employee his job was to comply with the law and that he believed the Corps had done this. He indicated that he was offended that the letter suggested he was not complying with law, because he took his job of complying with law seriously. Kim reiterated that the letter is confrontational, indicates the Corps is not doing a good job, and suggests violations of federal statutes. He stated that the letter is not indicative of cooperation.

Dale Beasley (CRFCA) stated that the number one issue in the letter comes down to where the Corps is going to put 100,000,000 cu. yd. of dredged material. He stated that he did not see where it could go without some of it being placed in Site B.

Kim Larson (Corps) responded directly to Dale by stating that he (Dale) had come to the conclusion that the Corps will use Site B, yet the Corps has not made such a decision yet.

Dale Beasley (CRFCA) responded that the Corps only had the capacity to dispose within the 4.5 mile ZSF.

Laura Hicks (Corps) stated that this had not been decided yet.

Kim Larson (Corps) stated that the ZSF represents a (an average?) maximum distance the Corps could travel in operating its hopper dredge over a 20 year period.

Dale Beasley (CRFCA) reiterated that the number one issue for the CRCFA was the 4.5 mile ZSF. It was their sense that 100,000,000 cu yd. could not be dumped within this zone without impacting the crab fishery.

Laura Hicks (Corps) reiterated that the 4.5 mile line is an average haul distance. The Corps does not represent that every haul will be within the 4.5 mile line. Nor does the Corps represent that all of the material will be disposed of outside of this line. Laura stated that this was a site management issue.

Bill Rhodes (CRCFA) asked about the possibility of thin-layer disposal within an 8 mile zone.

Laura Hicks (Corps) responded yes, of course.

John Malek (USEPA) stated that the issues being discussed now were issues raised and explained in several different ways in the previous meetings.

Danil Hancock (OIO) stated what he believed to be the current process. He stated that the Corps is trying to identify new disposal sites. The first consideration is one of economics. The second is the availability of a site within the 4.5 mile zone that is safe and does not cause an impact. If such a site is not possible, then that's when sites beyond the 4.5 mile ZSF must be considered.

Edith Beasley (CRCFA) expressed concern about this process coming to an end.

Dale Beasley (CRCFA) stated that the group must proceed with working in a partnership.

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Edith Beasley (CRCFA) indicated that she had someone taking a look at the laws to be sure all issues are properly handled. She also stated that she was concerned about being channeled or funneled into a decision from which there is no out, and would like to reemphasize the issues raised in Dale's July 23rd letter.

Kim Larson (Corps) stated that the Corps has internal counsel constantly reviewing what they do.

Edith Beasley (CRCFA) stated that she was sorry that the letter raised violations of law. She stated that this was not meant to have the appearance of a threat. She stated that the CRCFA considers itself as working with the Corps.

Laura Hicks (Corps) asked if there was any significance to the fact that today's letter was signed by several members of the CRCFA and the former letters were only signed by Dale. Laura asked if one letter indicates that all members were represented while the other letters do not.

Bill Rhodes (CRCFA) stated that many members lack trust for the Corps. He stated that the Corps says one thing yet does something else.

Dale Beasley (CRCFA) stated that much of this mistrust goes back to the time when the Corps was dumping in Site B and the crabbers were demanding that it stop.

Valerie Lee (EI-facilitator) directing her comments to the crabbers acknowledged the history they referred to of which she had no knowledge or involvement. Then she asked if Dick Sheldon and Bill Rhodes (new participants to these meetings) had had an opportunity to read the minutes of all the prior meetings.

Dick Sheldon (CRCFA) and Bill Rhodes (CRCFA) each replied no.

Valerie Lee (EI-facilitator) encouraged them do read the former minutes.

Edie Beasley (CRCFA) stated to Valerie that she (Valerie) had just put Dick and Bill on the spot and this was inappropriate.

Valerie Lee (EI-facilitator) replied that she was sorry that this was Edie's impression but this was not her intention at all. She was merely trying to encourage a common base of understanding of the process and technical information which has been provided by the Corps.

Dale Beasley (CRCFA) stated that he had encouraged other crabbers to come along today to see if they might obtain a different perspective of the issues at hand which were more similar to his own.

Valerie Lee (EI-facilitator) acknowledged Dale's efforts then asked the new participants about their perspective.

Dick Sheldon (CRCFA) stated that his perspective had not changed. He stated that he still had distrust for the Corps. He stated that despite what has been said today a 4.5 mile ZSF exists which makes him uncomfortable. He stated that the crabbers have been asking the Corps to swing out into the towboat lane where crabbing doesn't occur and to disperse over an area partially beyond the 4.5 mile zone.

At 5:00 p.m. Valerie Lee (EI-facilitator) interrupted the discussion to enable Rod Moritz to proceed with his presentation before the end of the day. Following Rod's presentation (outlined separately as notes for

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the Group 3 meeting) further discussion ensued regarding the CRCFA letter. The discussion was as follows.

Dale Beasley (CRCFA) stated that he did not wish to portray that the CRCFA had come here to draw a black curtain.

Kathi Larson (USFWS) stated that she felt that most of the biological information requested in the letter had been addressed or covered in previous meetings.

Rick Vining (WDOE) confirmed that he had similar feelings.

Diane Perry (CRCC) stated that was new to this process and was not familiar with all the history, but received the sense from the letter that the CRCFA was stating that this process was not working for them.

Dale Beasley (CRCFA) stated that he had basically written this letter in July - its virtually the same letter as the one submitted in July.

Valerie Lee (EI-facilitator) asked the crabbers if they felt comfortable with the process that had evolved today.

Dick Sheldon (CRCFA) stated that he appreciated and was happy that crabs would be considered separately, and not along with benthic invertebrates.

Bill Rhodes (CRCFA) indicated that he came to the meeting set against Dale on the Site E issue. He stated that he was more at ease now, having heard Rod Moritz's presentation and having also seen the Corps buoys in place (measuring currents). He stated that perhaps the crabbers and Corps could have a working relationship now. He also stated that if what had been said fell on deaf ears, this was partially due to how it had been perceived. He stated that it was better to cooperate and not to build fences around us and them.

Valerie Lee (EI-facilitator) asked if the group might be able to go through the letter in a collaborative manner, so as to encourage dialogue and to identify issues and whether, from Kathi's perspective, issues have already been addressed in prior meetings as well as the current meeting.

Kim Larson (Corps) affirmed that it may be necessary to sit down and discuss these issues further.

Valerie Lee (EI-facilitator) asked again if it might be possible to obtain a collaborative effort to evaluate the letter.

Dale Beasley (CRCFA) reiterated that the CRCFA felt strongly about the second paragraph of the letter. He stated that they wrote the letter in an attempt to avoid the disposal of 100,000,000 cu yd. of material within the 4.5 mile zone.

Laura Hicks (Corps) responded that she understood this desire and stated she knew that Dale, as a member of this group, would not allow this to happen. Laura also indicated that the COE would prepare a draft response to the letter and share it with the CRCFA prior to the letter being mailed.

Discussion Regarding Additional Information and Future Research

Kim Larson (Corps) told the group that the Corps would be conducting a disposal impact study on soft-shell crabs. Kim stated that the study would take place at the Scripps Laboratory in San

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Diego, CA. Adult crabs will be collected during the winter crabbing season and then transported to the lab. They will then be given time to molt prior to the study.

Laura Hicks (Corps) offered that the Corps has the capacity to videotape the study or could obtain invitational orders to provide for airfare down to the lab for one individual from CRCFA who might be interested in observing the experiment in-person. She asked if anyone was interested in going.

Response: At this time, all participants agreed that videotaping of the experiment would be sufficient.

Kim Larson (Corps) asked the crabbers if this might be an acceptable approach to evaluating potential effects of disposal to soft-shell crabs.

Dale Beasley (CRCFA) responded yes, and added that this might turn out to be beneficial for the Corps as well, as has been the case with the information obtained from the bathymetric surveys around Site E.

Kim Larson (Corps) stated that he would be showing a video from a crab entrainment study at the October 22 and 23 meeting in Astoria.

Kim Larson (Corps) also indicated that he had received a complete copy (2 large volumes) of Susan Reese's report discussing thin-layer disposal. Kim distributed a portion of the report to the participants that he feels highlights the results of the study. The complete report is available to anyone with interest. He stated that Susan's study does not speak directly to crabs, but does speak to species equally as sensitive.

Details Regarding the Upcoming Meeting

In order to provide time for participants to travel, the meeting on the 22nd of October will begin at 10 a.m. The meeting will be held at the Port of Portland Offices near the Red Lion (Double-Tree) Inn in the same room in which the survey interviews were held. The meeting agenda will be available and distributed by e-mail during the prior week. The meeting on the second day will begin at 9:00 a.m. and will proceed until all matters have been discussed.

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Meeting Participants

Participant Name	Organization	Phone/Email
Rick Vining	WDOE	(360) 407-6944
Steve Barry	WDFW	(360) 249-1203
Laura Hicks	COE	(503) 808-4705
Ann Richardson	For Congresswoman E. Furse	(503) 326-2901
Shari Hildreth	For Senator Slade Gorton	(360) 696-7828
Scott Patterson	For Representative Linda Smith	(360) 695-6292
Mike DeSimone	Pacific County	(360) 642-9382
Arlene Merems	ODFW	(541) 867-0300 x246
Diane Perry	CRCC	(503) 285-6343
Danil Hancock	Oceanographic Institute of OR	(360) 735-8082
Dale Beasley	Col. River Crab Fishers Assoc.	(360) 642-3942
Edith Beasley	CRCFA	(360) 642-3942
William H. Rhodes	CRCFA	(360) 777-8551
Dick Sheldon	CRCFA/Northern Fish & Oyster	(360) 665-4886
Chris Doumit	CRCFA	(360) 795-0601
Kathi Larson	USFWS, Portland	(503) 231-6179
Heidi Helwig	COE-PA	(503) 808-4510
Mark Siipola	COE	(503) 808-4855
Kim Larson	COE	(503) 808-4776
John Malek	EPA	(206) 553-1286
Margaret (Peg) Merrens	Environment International	(206) 525-3362
Valerie Lee	Environment International	(206) 525-3362

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COLUMBIA RIVER OFFSHORE DISPOSAL SITE WORKSHOP
Physical Processes Working-Group Meeting

Meeting Notes

I. Introduction

On October 8, 1997, a meeting was held at the U.S. Army Corps of Engineers (Corps), Portland District offices for Working Group 3, a subgroup of a larger group of public and private stakeholders who have convened to discuss offshore disposal options for the Mouth of the Columbia River (MCR) and the Columbia River Channel Deepening Projects. The purpose of this meeting was to discuss the development of overlay maps and relevant information pertaining to physical processes occurring at the MCR. Representatives from state, local, and federal agencies were in attendance, as were individuals from the crab and fishing industry. A neutral facilitator, Valerie Lee of Environment International, led the meeting. Margaret Merrens, also of Environment International, co-facilitated and recorded notes of the proceedings.

II. Presentation of Background Information

Rod Moritz, the Corps coordinator of Group 3, provided the group with a series of overheads and a presentation regarding new findings and data which will aid in the selection of new offshore disposal sites. Rod distributed a packet of handouts to the participants, including information requested at the last group meeting and overheads for this meeting. Information pertaining to each overhead has been summarized below.

Results of a New Bathymetric Survey

Bathymetric information at the Mouth of the Columbia River (MCR) was presented from surveys conducted in June 1985 and August 1997. In addition, this information was combined and presented in an overhead to depict bathymetric changes occurring off the MCR between 1985 and 1997. Rod pointed out a few key features of the overheads.

- In general, the seabed is eroding in the vicinity of Site E; the seabed has eroded 5-10 feet to the west of Site E despite continual placement of sediments at the site.
- Some accumulation is occurring on the north side of Site E, but the majority of sand disposed there had been dispersed.
- Some accumulation is occurring inward of Peacock Spit.

Wave Amplification Data - Due to Bathymetric Differences between 1985 and 1997

Rod explained that accumulated material may have an impact on wave amplification. He presented an overhead depicting wave amplification occurring off the MCR between the years of 1985 and 1997. He made the following observation:

- Amplification of waves is occurring as a result of sediment accumulation at Site B, and is not attributed to Site E.

Limiting Mound Height for Preventing Wave Amplification

Rod provided the group with a graph depicting how large a feature (disposal mound) can be created in a specific water depth before wave amplification occurs. Wave amplification would be indicated by an 10% increase in wave size. He stated that the Corps would use this information to prevent wave problems at or in the vicinity of disposal site. He made the following observations:

- The information presented on this graph could be used to design a site at a particular water depth; this is not an overlay, but merely a tool which will be used to assist with site management and designation.
- In 100 feet of water, the maximum height of a mound would be 8 feet high.
- Site size (area) can also be estimated using this graph.

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- Using an example of 100,000,000 cu. yd. of dredged material over 20 years, and the need to prevent degradation to the environment and navigation, the "Limiting Mound Height vs. Water Depth" graph can be used to estimate maximum mound height and size. In 150 feet of water, to maintain mound size to 25 feet, the site should be 2.2 miles long by 2.2 miles wide.
- Once a potential site is designated, tools can be used to determine the best size for the site. Of it is believed that a 2x2 mile site is necessary, Rod suggested opting for an even larger area. He stated his belief that the larger the site created, the less likelihood for conflicts or problems such as accumulation or wave amplification.

Bathymetry and Bathymetric Changes at Site E

Rod presented three overhead maps depicting bathymetry and bathymetric changes at the expanded Site E. The first, "May 1997 Bathymetry," depicts water depths at Site E taken during a May survey. The second depicts differences in bathymetry recorded between May and August 1997 surveys. The third map depicts a 2 year difference in bathymetry between May 1995 and August 1997. Rod made the following observations:

Bathymetric Differences between May 1997 and August 1997

- The numbers represented on the map are not depths, instead they indicate differences occurring in depth over a period of time from May to August 1997.
- 1.1 million cu. yd. has been deposited in the expanded site E area this season; however, in the beginning of the season, prior to site expansion, the Corps only dumped in the old Site E.
- The highest point in Site E (in August) is 2-3 feet higher than the same point was in May.
- This particular high point happens to be in the old Site E.
- The approximate depth at this point is about 60 feet.

Bathymetric Differences Between May 1995 and August 1997

- This map depicts differences in bathymetry over a two year period (1995 - 1997).
- Some build up is apparent; there has been about a 4 feet change of bathymetry within the boundaries of the old Site E; this is close to Buoy 9.
- This could be indicative of an accumulation problem and shows the need to use Site E carefully.
- Future dumping may not be wise inland where it tends to accumulate. Instead it could be deposited slowly on the outer eroding edge.
- Whether the accumulation is happening naturally or whether the Corps is contributing is not known at this time.

MCR Erosion Potential

Rod stated that he had prepared information which had been requested by various participants present at the first Group 3 meeting. He stated that the following information had been requested by George Kaminsky (WDOE). This overlay depicts the potential for sediment erosion at the MCR. The following key points were made:

- This information could provide the basis for a potential overlay.
- Black areas show areas of high erosion.
- Site B has little or no erosion potential during storm conditions.
- Site E has a high erosion potential.

Areal Distribution of Nearshore Sediment Types

Rod provided an overlay map depicting various sediment textures and grain size at the MCR. The following key points were made:

- The finest sediments, indicated with vertical lines, are located in defined regions to the north and south, in areas referred to as a silt/clay regions.

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- Cross hatched regions are indicative of fine sand mixed with silt/clay.
- Horizontal lines represent region of fine sand.
- Speckled areas represent coarse sand.
- The disposal sites are the old sites and do not represent the boundaries of the new expanded sites.
- It should be kept in mind that this data was compiled in 1977; prior to 1977 there were no designated disposal sites; and materials were dispersed widely.

Average of 1992 and 1996 Percent Fines in Bottom Sediments at the MCR

Rod explained that this overlay depicts averages in grain sizes between 1992 and 1996. He explained that this was another method for evaluating sediments at the MCR.

Overhead of Two Different Types of Disposal Mound Footprints

Rod compared disposal footprints created by the two different dredges currently available to the Corps. The first footprint is from the government dredge ESSAYONS; the second footprint is made by the contractor dredge NEWPORT. He provided the following comments:

- The government dredge ESSAYONS produces a widespread footprint with a maximum thickness of ¼ foot spread over a broad area.
- The contractor dredge NEWPORT produces a shorter footprint with a maximum thickness of ½ foot.
- Given this information, a compromise might consider using the ESSAYONS in sensitive areas and the NEWPORT in other sensitive areas.

III. Questions and Answers

Dale Beasley asked Rod if he could explain to where the material in Site E was dispersing.

Rod Moritz (Corps) stated that he could only say with certainty where it is not going. Additional surveys and measurement of currents will ultimately lead the Corps to this answer though. Rod indicated that the Corps currently had a hydrodynamic survey crew engaged to assess what was happening in the area of Peacock Spit.

Dale Beasley (CRCFA) stated that he would like further information regarding what is happening to the west and north of Site E to truly prove that a mound is not building at Site E.

Rod Moritz (Corps) drew attention to the 1985-1997 map depicting bathymetric differences (change).

Dale Beasley (CRCFA) indicated he liked this information, as it confirms what he has told his constituents. He requested that more of the same type of information all the way up to the north edge.

Steve Barry (WDFW) stated that this is exactly what his agency has requested as well.

Dale Beasley (CRCFA) stated that this is good information, but over three years he has seen changes that may not be represented here. He stated that where it used to take 5 minutes to cross the Spit, it now takes 10 minutes, which doubles the opportunity to be caught in a breaker.

Rod Moritz (Corps) stated that the Corps has this same type of information for 1994, and he could provide a similar bathymetric comparison between 1994 and 1997 for Dale.

John Malek (USEPA) asked Rod to report on how many surveys the Corps has conducted since they began dumping in the 1997 dredging season.

COLUMBIA RIVER OFFSHORE DISPOSAL SITE WORKSHOP
Physical Processes Working-Group Meeting

Rod Moritz (Corps) state that 3 or 4 have been conducted. The last being on August 20th, and the Corps and EPA are planning on conducting more if weather allows. Adverse weather has prevented more at this time.

Rod also stated that the Corps presently has current meters (red buoys) in place. They have three and plan to obtain a fourth. The District will put the fourth where it is needed most. It may end up going at a new site. Rob indicated that this may be an opportunity to obtain data at a candidate site.

PHYSICAL PROCESSES

October 8, 1997

- Summarize what's been done to date in past sessions

Looked at preponderance of data

- Where to go from here?

Select *Priority overlays or criteria* – Physical Processes

- Look at Site Selection Criteria

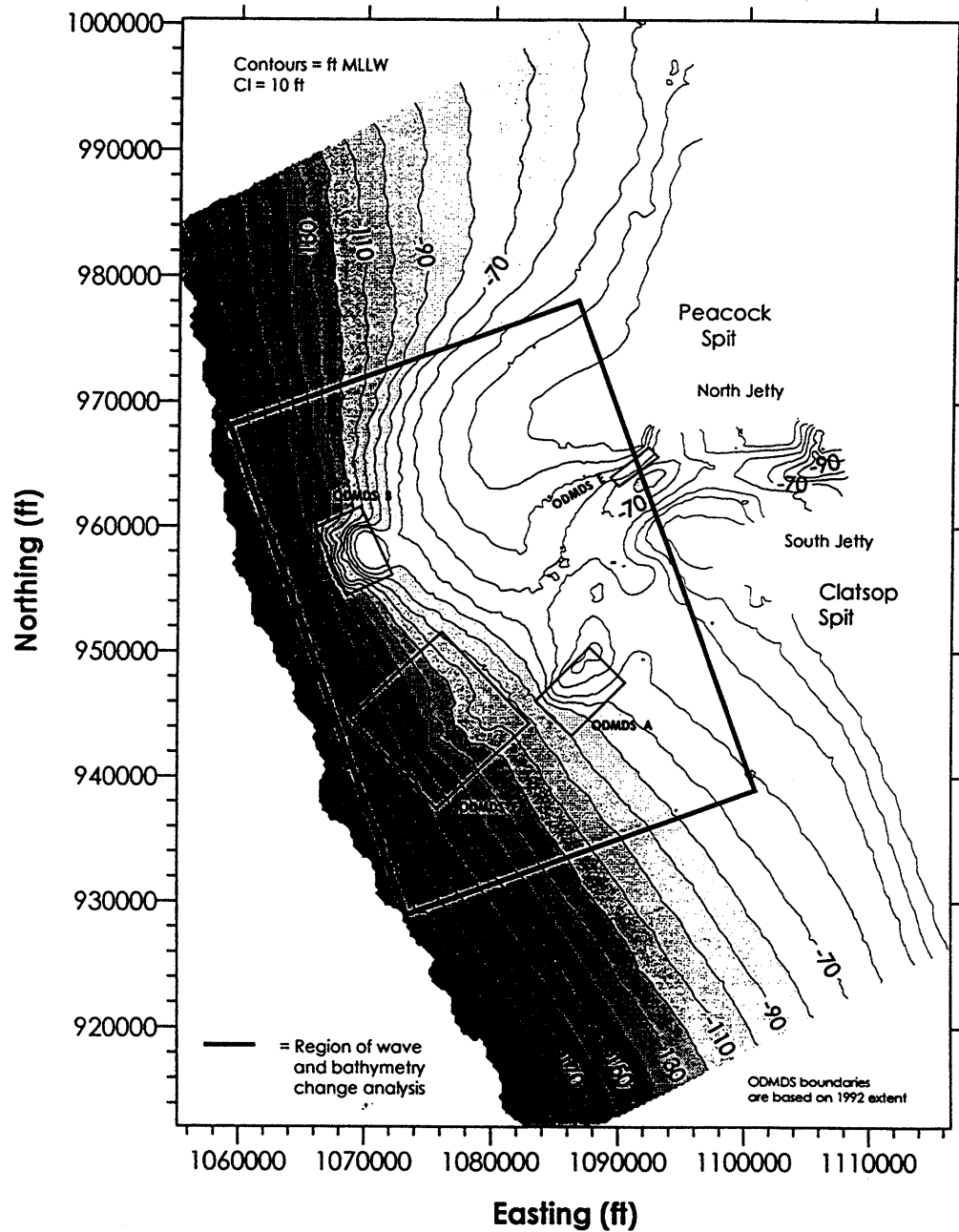
vs.

Site Management Criteria

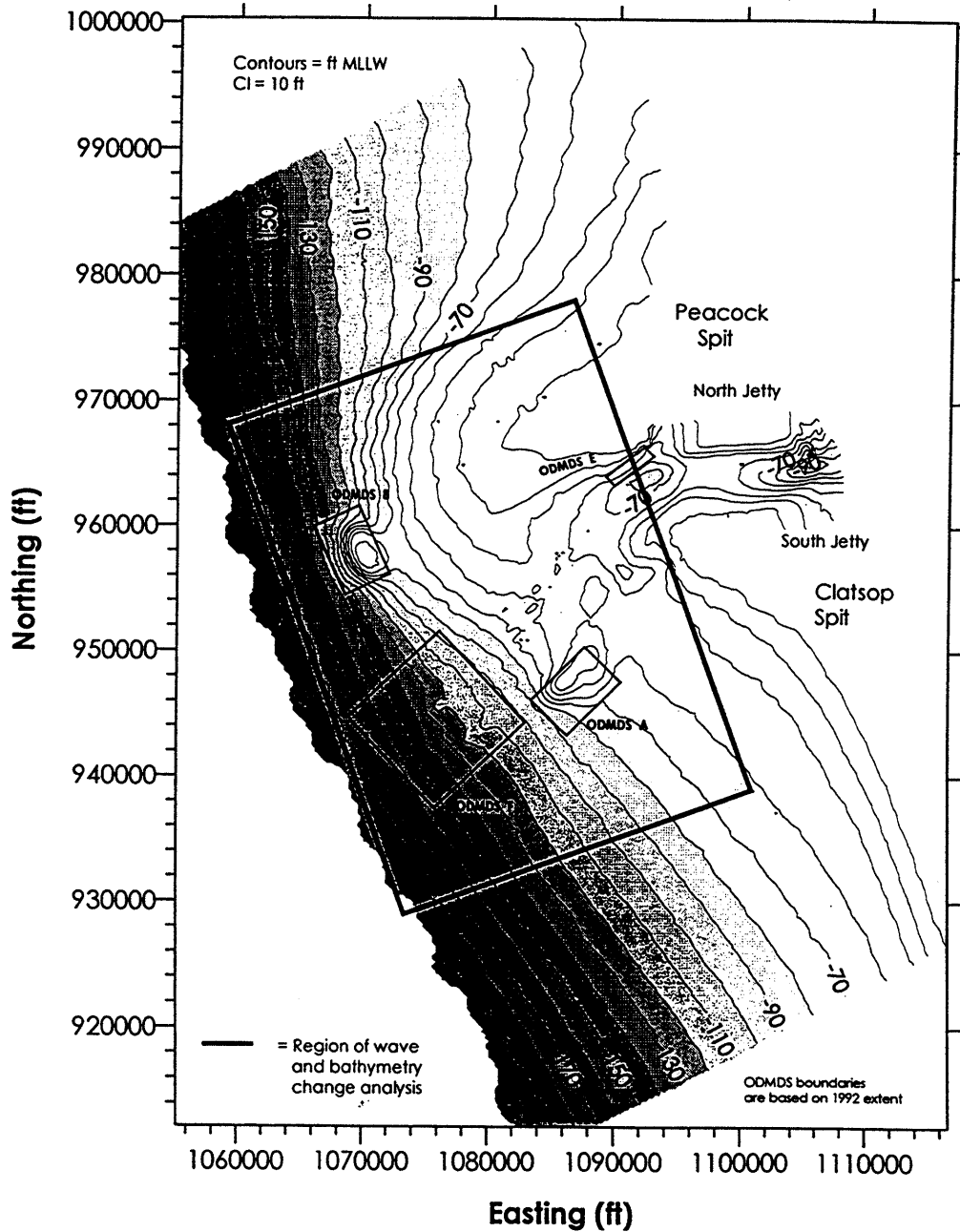
(MCR & Tongue Point Dredged Material Deposited at Cited Disposal Areas)

Note 1: ODMDSSs receive *Interim* designation in 1977 .
 Note 2: Final designation of ODMDSSs in 1983 .
 Note 3: * Estuarine disposal site.

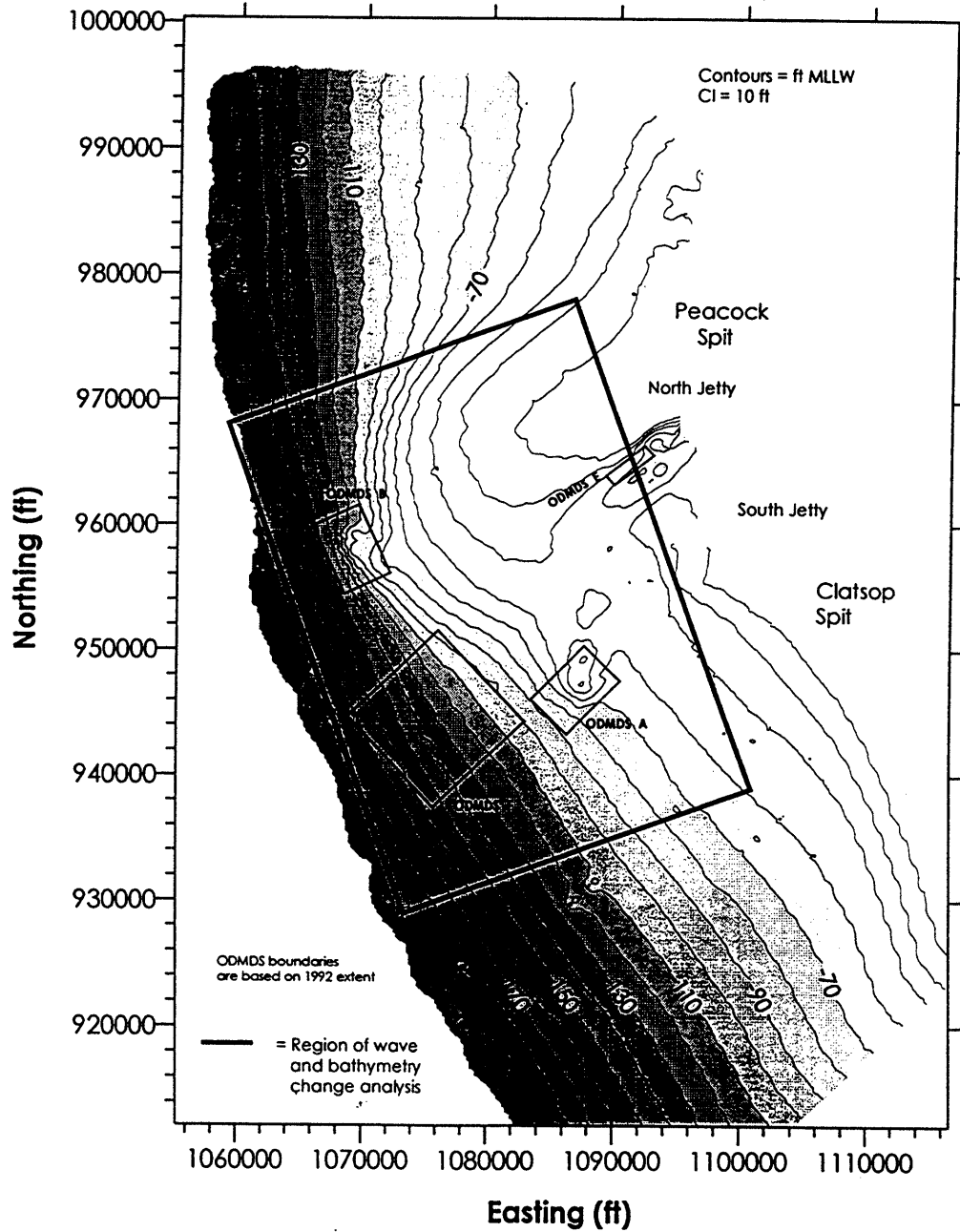
Mouth of the Columbia River Approach Bathymetry August 1997



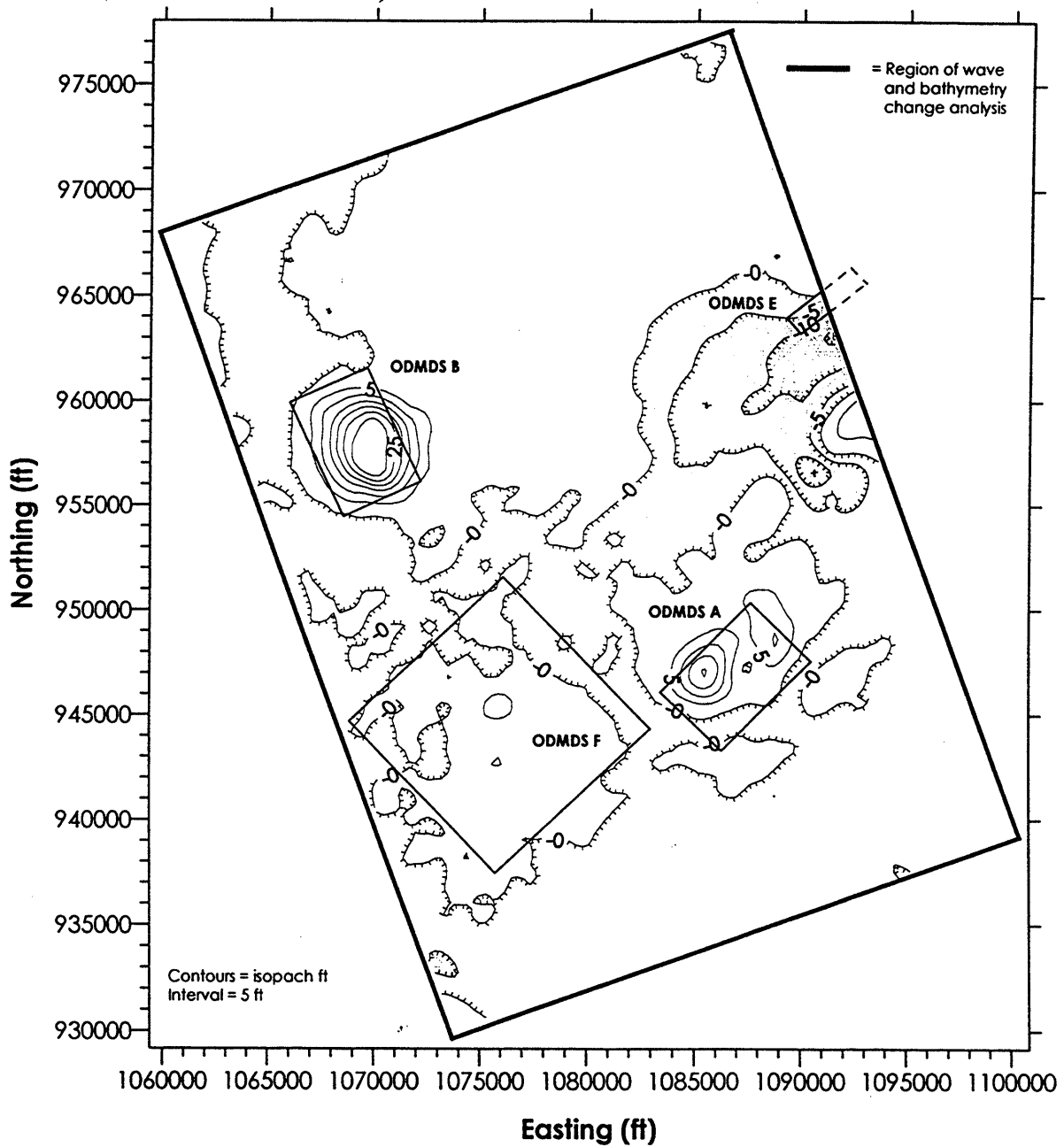
Mouth of the Columbia River Approach Bathymetry September 1994



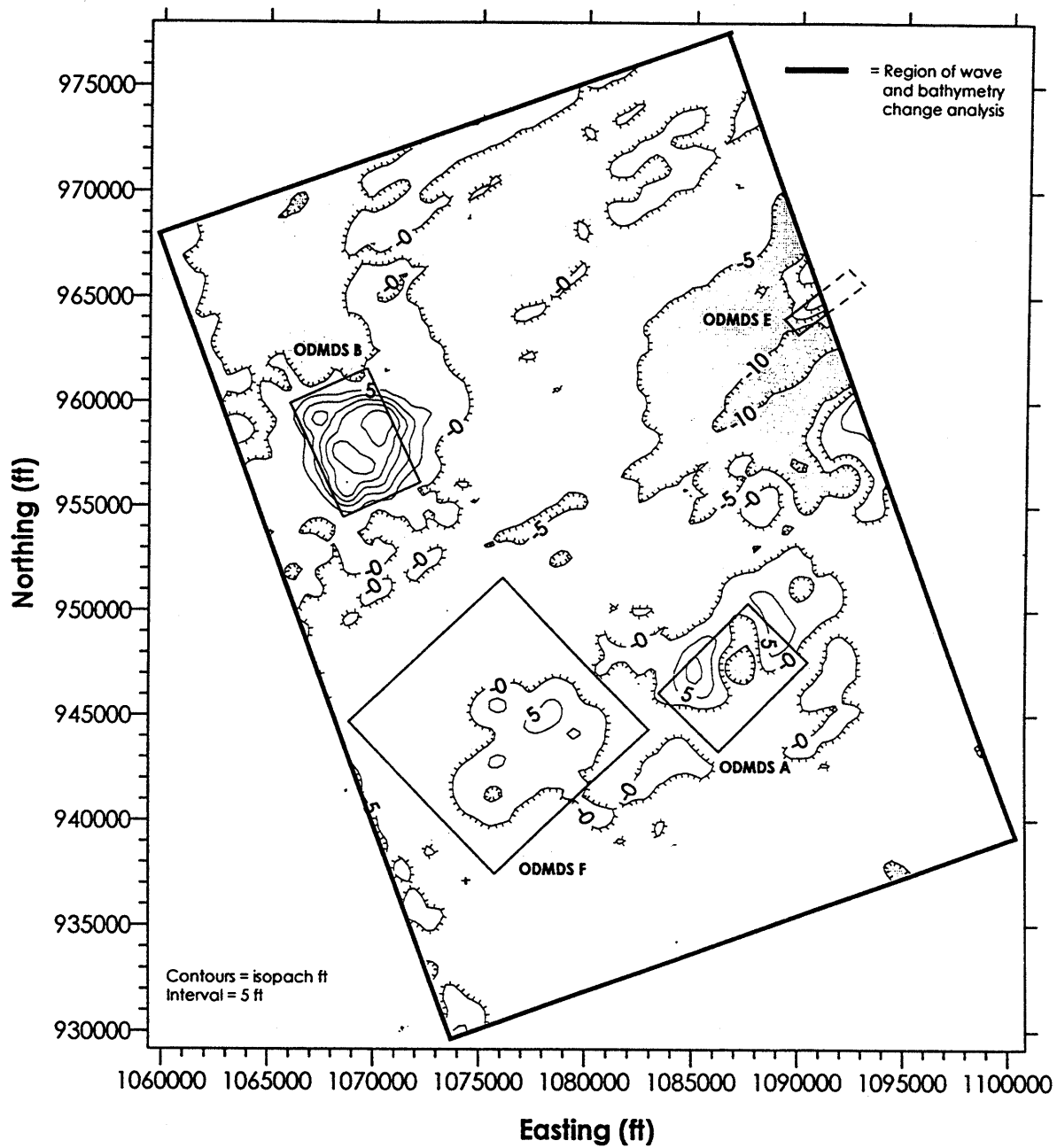
Mouth of the Columbia River Approach Bathymetry June 1985



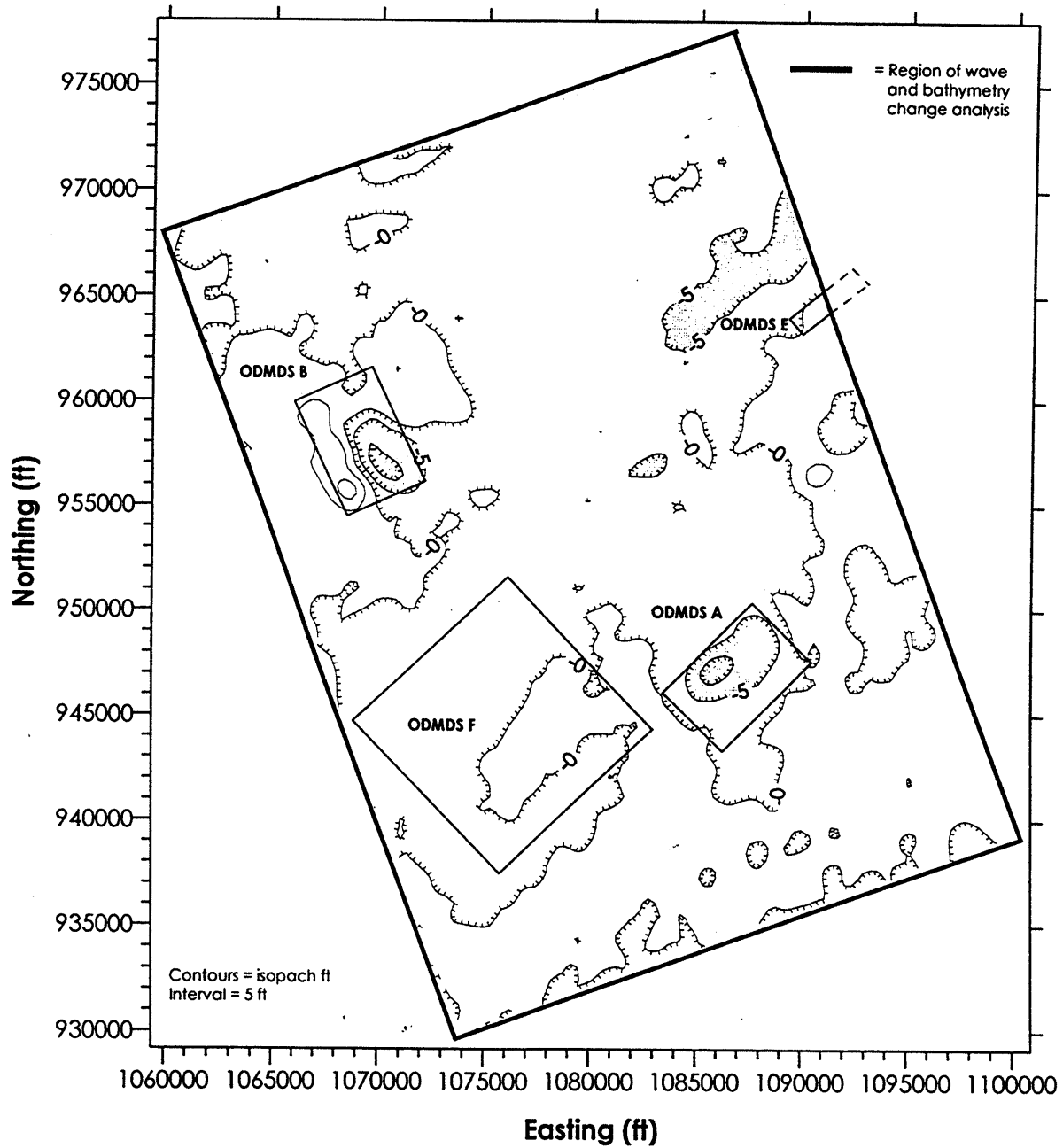
**Approaches to MCR
Bathymetry Difference
between 1985 - 1994**



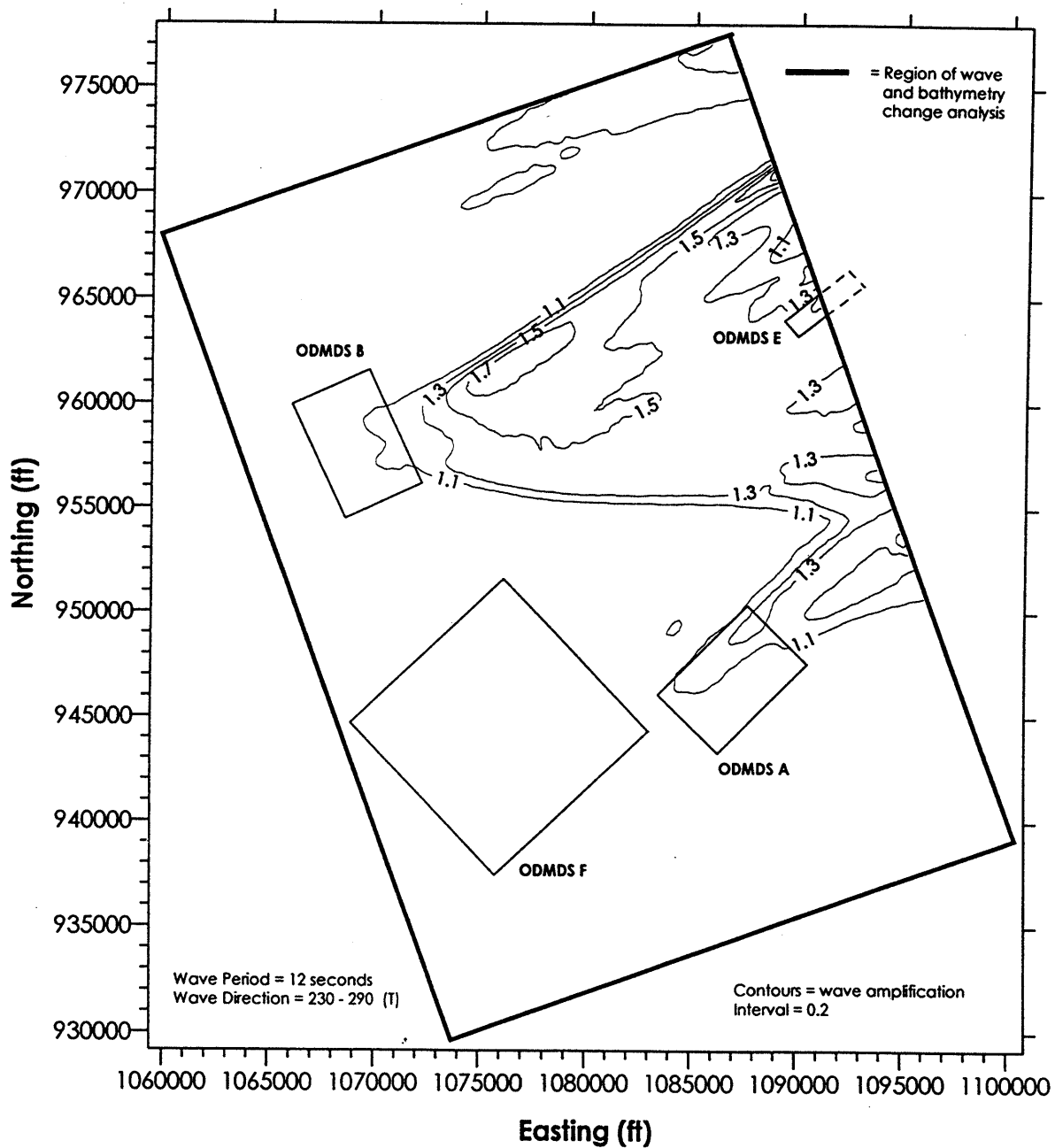
**Approaches to MCR
Bathymetry Difference
between 1985 - 1997**



**Approaches to MCR
Bathymetry Difference
between 1994 - 1997**

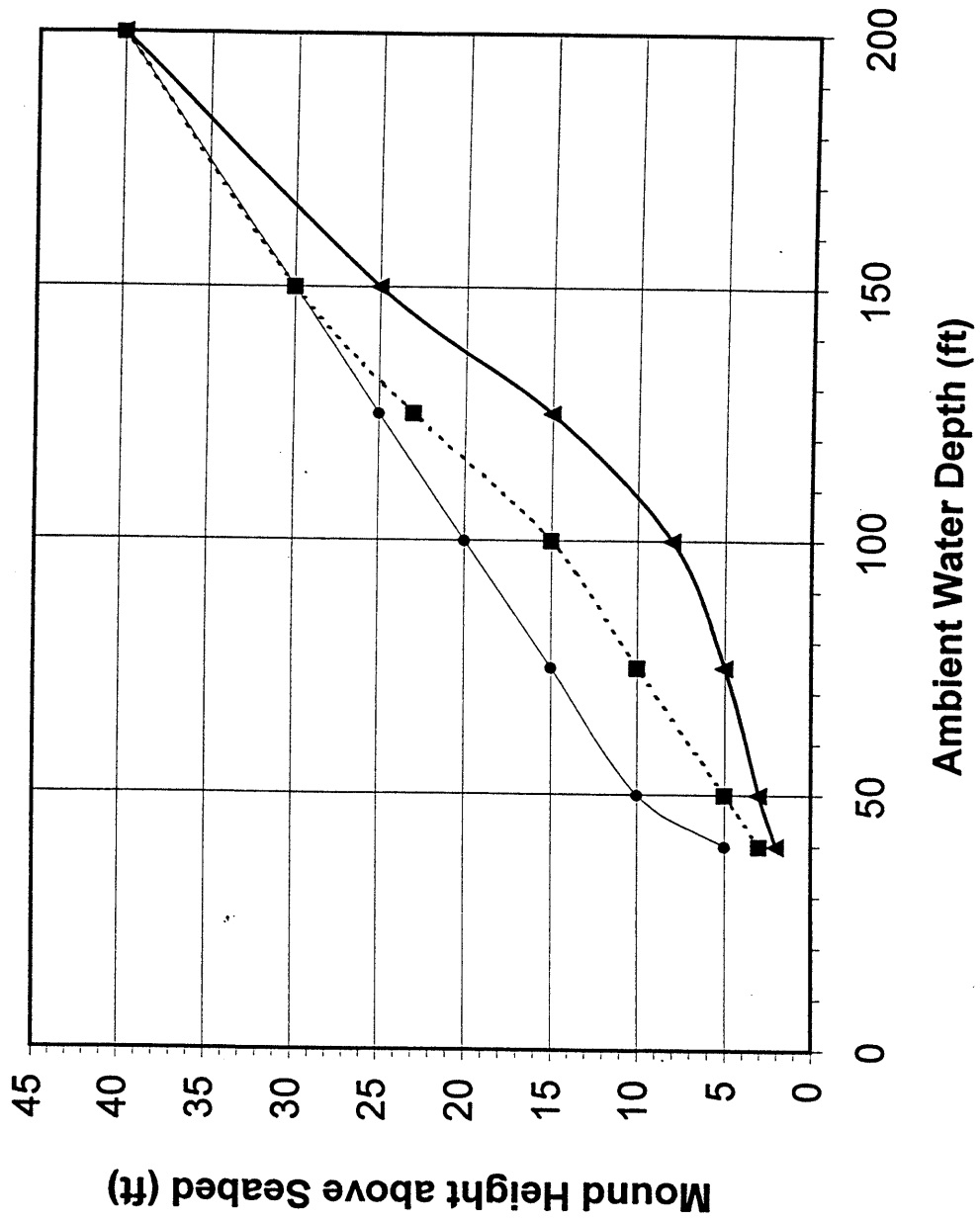


Approaches to MCR Wave Amplification Factor Due to Bathymetry Difference between 1985 - 1997



Limiting Mound Height for Preventing Wave Amplification

based on 12 second wave period
for various mound geometries with 0.02 side-slope



ESTIMATING DISPOSAL SITE *SIZE* (AREA)

REQUIRED: Disposal Site Capacity to Handle 100 million cy of Dredged Material over a 20-year Period

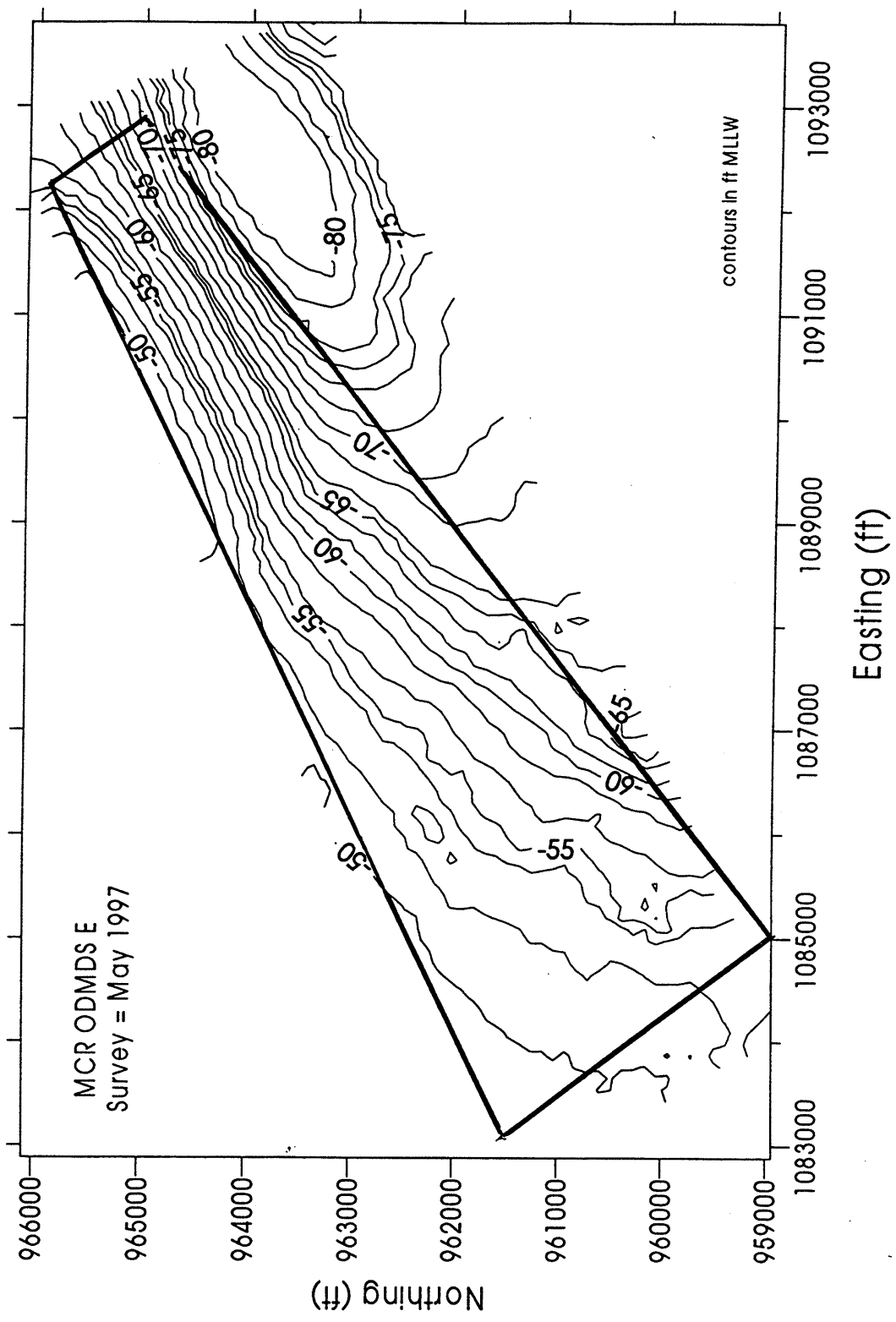
GIVEN: Accumulated Material can not Degrade Navigation or the “Environment”.

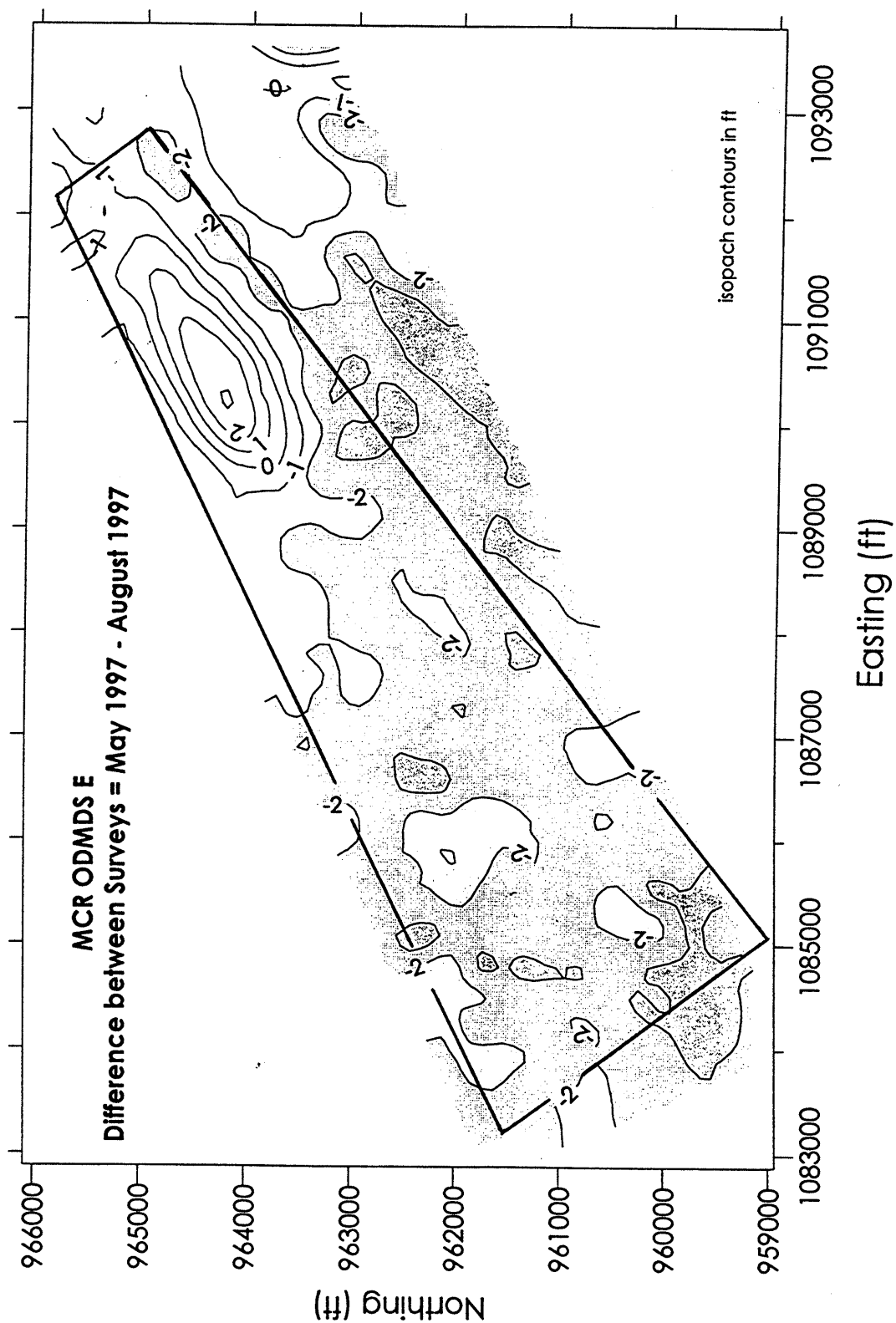
In Terms of Physical Constraints - Avoid Creating “Mounds” which cause Hazardous Wave Conditions (Breaking or Excessive Shoaling).

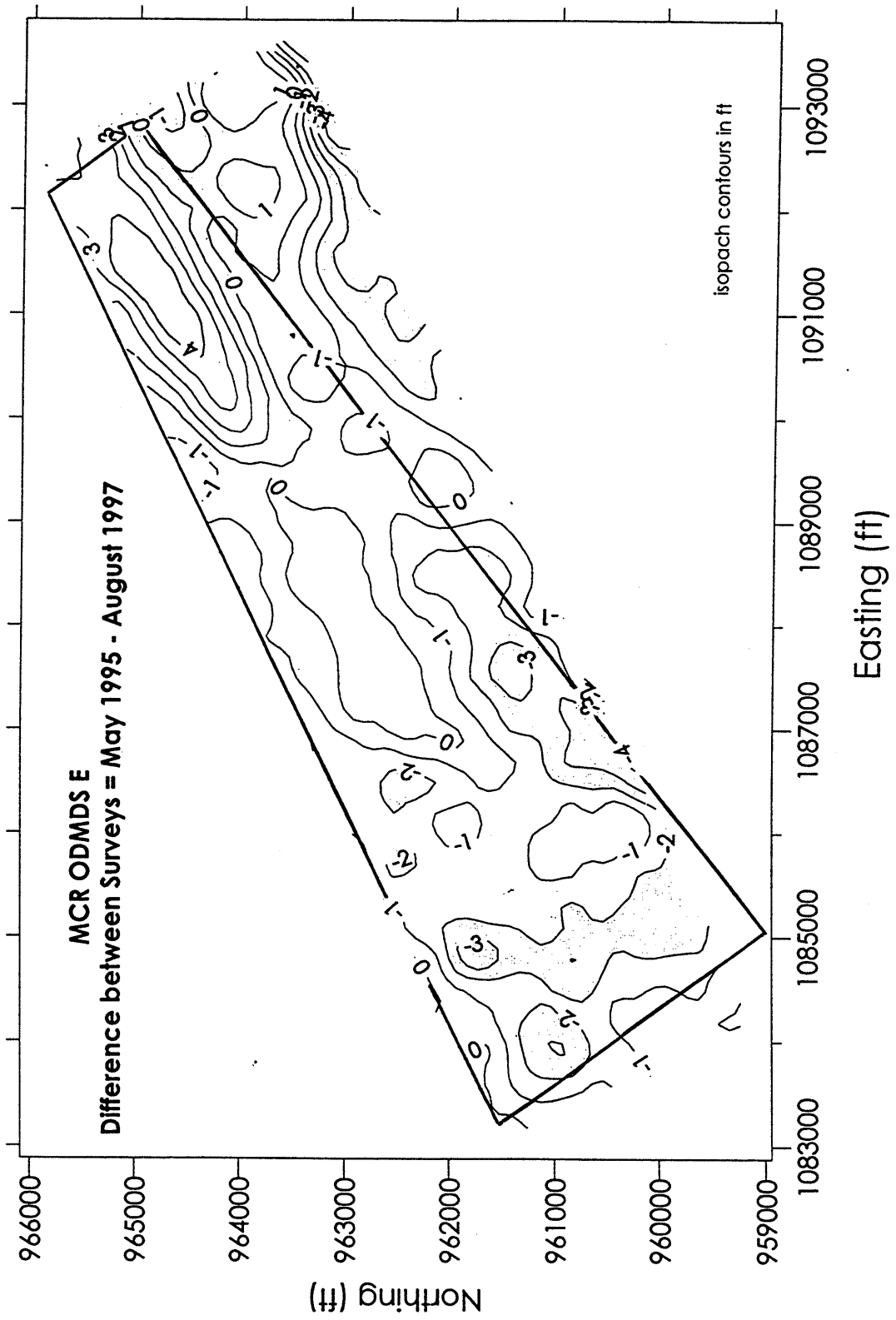
SOLUTION: Use “Limiting Mound Height vs. Water Depth” graph.

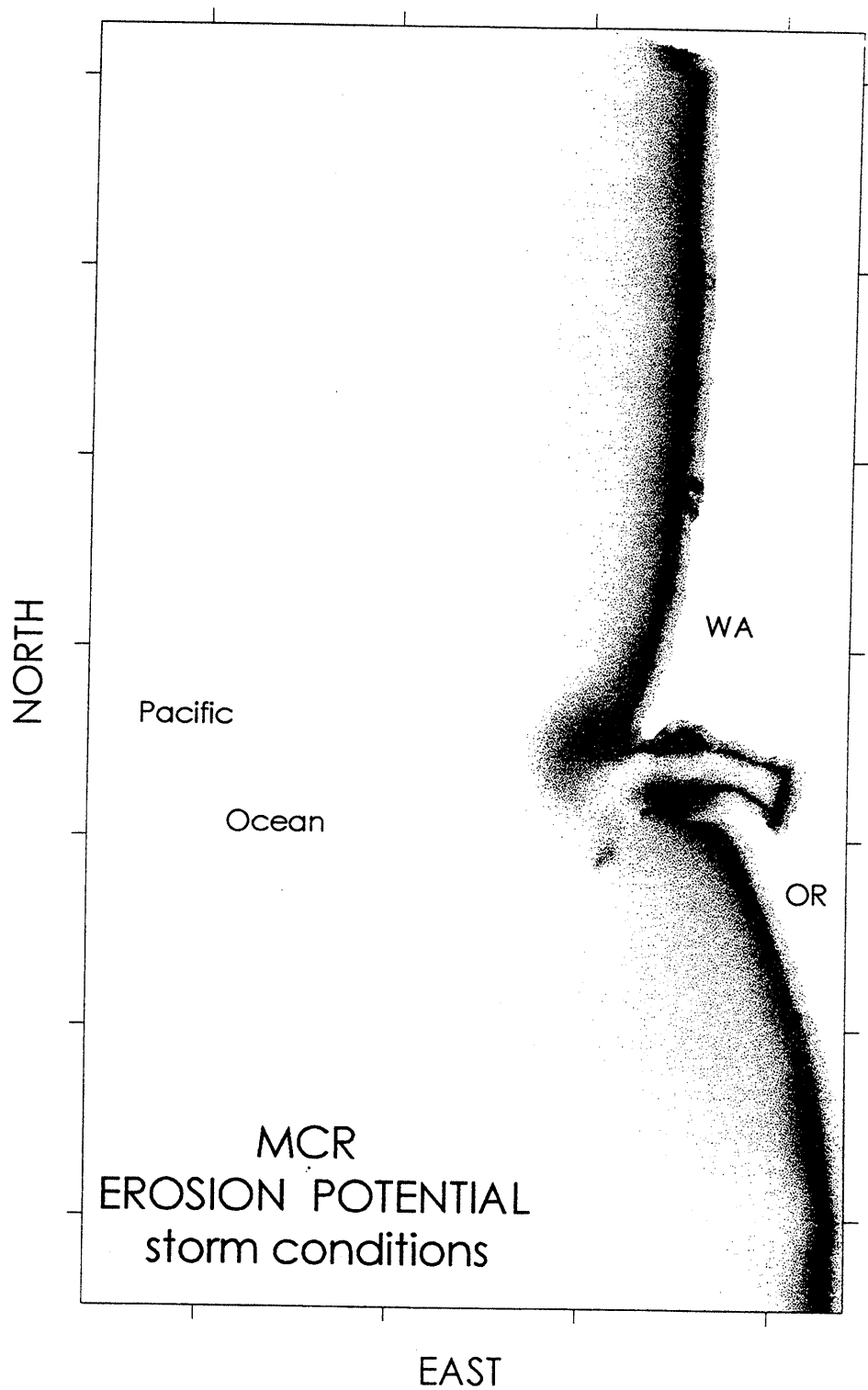
Get Limiting Mound Height for a given Water Depth and Figure out Disposal Site Size (square area)

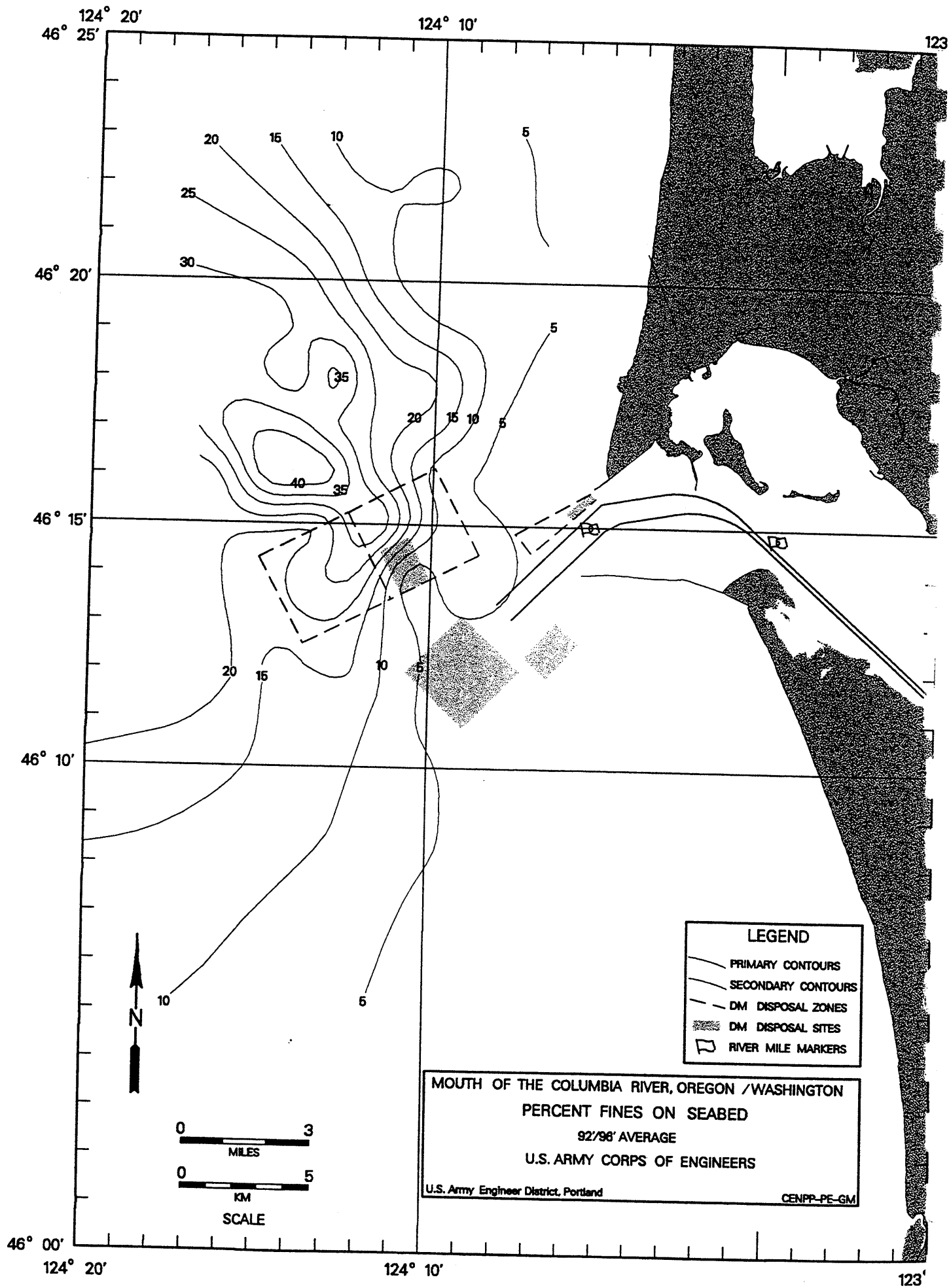
<u>Water Depth</u>	<u>Limiting Mound Height</u>	<u>Site Size (Length x Width)</u>
50 ft	3 ft	5.9 mile x 5.9 mile
100 ft	8 ft	3.7 mile x 3.7 mile
150 ft	25 ft	2.2 mile x 2.2 mile
200 ft	40 ft	1.8 mile x 1.8 mile













MEDIAN DIAMETER (mm)

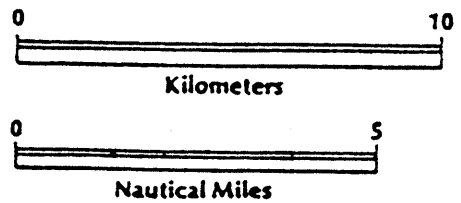
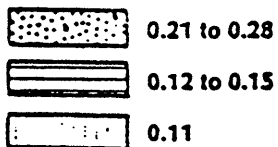


Figure 3-5. Areal Distribution of Nearshore Sediment Types
Source: Sternberg et al. (1977)

